Service Manual

Video Cassette Recorder

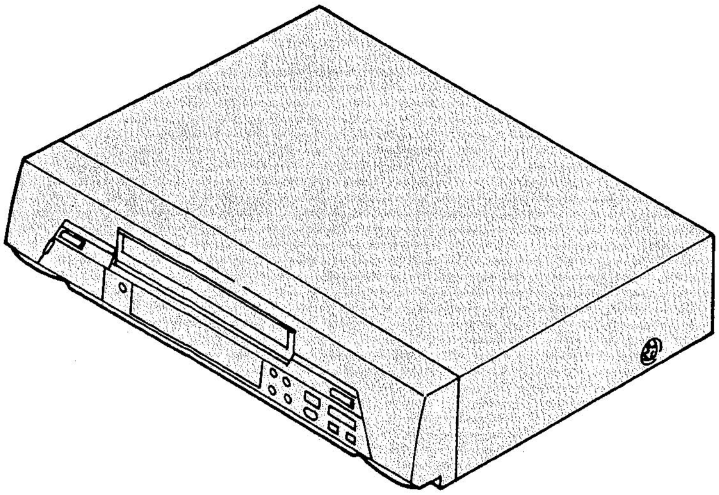
Panasonic VHS
NTSC

Hi-Fi HQ

NV-SJ400 PM PMP
NV-FJ600PM

Z-MECHANISM

General Description
Adjustment Procedures
Block / Schematic Diagrams
Exploded Views / Parts List



SPECIFICATIONS

ITEM	SPECIFICATION
POWER	SOURCE : 110 – 240 V, 50 / 60 Hz
	CONSUMPTION : 12 watts (NV-SJ400PM/PMP) 13 watts (NV-FJ600PM)
RECORDING SYSTEM	2 rotary heads, helical scanning system
	NTSC
TV TUNER SYSTEM	VHF : CH2 – CH13 UHF : CH14 – CH69 CATV : CH5A & CHA - CH5 – CHEEE 75 Ω unbalanced
RF OUT SYSTEM	VHF : CH3 or 4 $66 \pm ^{2.5}_{3.0}$ dBμ, 75 Ω terminated
VIDEO	HEADS : 4 rotary heads 1 pair for recording and playback (L-R heads) 1 pair for trick play (L'-R' heads)
	INPUT : VIDEO IN Connector (Phono type) 1.0 Vp-p, 75 Ω unbalanced
	OUTPUT : VIDEO OUT Connector (Phono type) 1.0 Vp-p, 75 Ω unbalanced
AUDIO	HEAD : 1 Stationary head (Normal Audio) 2 channels (Hi-Fi Sound- Sterro):FJ600PM
AUDIO	INPUT : AUDIO IN Connector (Phono type) – 10 dBV (316 mV), 47kΩ
	OUTPUT : AUDIO OUT Connector (Phono type) – 8 dBV (400 mV), 1kΩ
TAPE FORMAT	VHS Cassette tape (Tape width 12.7 mm)
TAPE SPEED	SP : 33.35 mm/s EP : 11.12 mm/s Record / Playback Time : SP : 2 hours with 120 min type tape (T-120) EP : 6 hours with 120 min type tape (T-120) FF / REW Time : 1 minutes with 180 min. type tape (T-120)
OPERATING CONDITION	Temperature : 5 ℃ – 40 ℃ Humidity : 35 % – 80 %
DIMENSIONS	430 (W) X 87 (H) X 283 (D) mm
WEIGHT	3.5 kg
STANDARD ACCESSORIES	1 pc. Remote Controller 1 pc. AC Cord (A2) 1 pc. AC Plug Adaptor (A2 → C2) 1 pc. RF Cable

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

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⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

INTRODUCTION

This service manual contains technical information which will allow service personnels to understand and service this model.
Section 1 presents you with technical know how for actual servicing and general information of features and controls, enabling you to become familiar with each function.
Section 2 presents to you mechanical and electrical adjustment information as well disassembly and replacement procedures.
In the case of very common information relating to other models like mechanical adjustments, please refer to the appropriate service manual.
Section 3 contains block diagrams which offers you information for checking and understanding each circuit. Schematic diagrams which give you detailed information such as waveforms, voltage data, function etc. ...
Section 4 contains exploded views and parts list.
Please place orders using the parts list and not the drawing reference numbers.
If the circuit is changed or modified, this information will be followed by supplementary service manual to be filed with original service manual.

Note1: Adjustment procedures, Disassembly Procedures and Assembly Procedures for Mechanism Chassis are separate volume from this service manual.
Please refer to the service manual for Z-Mechanism Chassis. (Order No. VRD9802005C2)

CONTENTS

SECTION 1 GENERAL DESCRIPTIONS 1-1
- 1-1. SERVICE CAUTION 1-1
  - 1-1-1. REPLACING PROCEDURE [IC6001/B7751] 1-1
  - 1-1-2. CAUTION FOR AUTO TUNING 1-3
  - 1-1-3. CHECKING OF MAIN C.B.A. 1-3
  - 1-1-4. REMOVAL OF CASSETTE TAPE 1-3
  - 1-1-5. CYLINDER UNIT REPLACEMENT 1-4
  - 1-1-6. FLAT CARD CABLE INSTALLATION 1-5
- 1-2. SELF-TEST & SERVICE INFORMATION DISPLAY 1-5
- 1-3. OPERATING INSTRUCTIONS 1-6

SECTION 2 ADJUSTMENT PROCEDURES 2-1
- 2-1. DISASSEMBLY METHOD 2-1
- 2-2. MECHANICAL ADJUSTMENT PROCEDURES 2-3
- 2-3. ELECTRICAL ADJUSTMENT PROCEDURES 2-4

SECTION 3 BLOCK DIAGRAMS & SCHEMATIC DIAGRAMS 3-1
- 3-1. ABBREVIATIONS & INPUT/OUTPUT CHART FOR IC6001 3-1
- 3-2. Hi-Fi AUDIO SECTION BLOCK DIAGRAM (NV-FJ600PM) 3-8
- 3-3. SYSTEM CONTROL & SERVO / TIMER SECTION BLOCK DIAGRAM 3-9
- 3-4. VIDEO SECTION BLOCK DIAGRAM 3-11
- 3-5. POWER SECTION IN MAIN SCHEMATIC DIAGRAM 3-13
- 3-6. SYSTEM CONTROL & SERVO / TIMER SECTION IN MAIN SCHEMATIC DIAGRAM 3-15
- 3-7. VIDEO SECTION IN MAIN SCHEMATIC DIAGRAM 3-19
- 3-8. CYLINDER MOTOR UNIT SCHEMATIC DIAGRAM 3-22
- 3-9. CYLINDER MOTOR UNIT C.B.A. 3-22
- 3-10. AUDIO SECTION IN MAIN SCHEMATIC DIAGRAM 3-23
- 3-11. CAPSTAN DRIVE UNIT SCHEMATIC DIAGRAM 3-26
- 3-12. MAIN C.B.A. 3-27

SECTION 4 EXPLODED VIEWS & PARTS LIST 4-1
- 4-1. EXPLODED VIEW MECHANICAL REPLACEMENT PARTS LIST 4-1
  - 1. CHASSIS PARTS SECTION 4-1
  - 2. CASING PARTS SECTION 4-3
  - 3. PACKING PARTS SECTION 4-5
- 4-2. ELECTRICAL REPLACEMENT PARTS LIST 4-6

Service Information

Video Cassette Recorder
VHS/VHS-C Movie
Video Printer

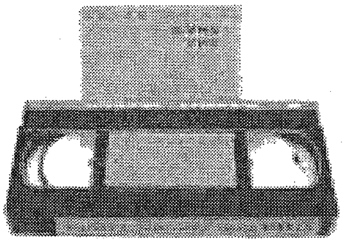
Model: For all VHS/SVHS VCP/VCR

Subject: Introduction of Video Head Cleaning Cassette (Polishing Type)

- We are pleased to introduce Panasonic Video Head Cleaning Cassette, **VFK0923FT** [for service purposes] and **VFK0923FSE** [for end users] for all VHS/SVHS VCP and VCR.
- These cleaning cassettes are exclusive removing the hard and sticky clogging on video heads.
- These improve the efficiency of video head cleaning service and shortening cleaning time for end users.

	VFK0923FT (For Service usage)	VFK0923FSE (For end users)
Type of Cassette	Full VHS Cassette	Full VHS Cassette
Cleaning Time	10 Seconds/Time	10 Seconds/Time
Tape Length	20 m	3.34 m
Usability in a Path	180 Times	30 Times

NOTE): The tape material itself is the same in both types.



[VFK0923FT]

[VFK0923FSE]

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SECTION 1
GENERAL DESCRIPTIONS

1-1. SERVICE CAUTION

When the Microprocessor IC6001 and/or Back-up battery B7751 are replaced, read following procedure carefully and proceed it.

[REASONS]

There is a RAM in the IC6001, which is backing up:

1.Programme Navigation Data
2.TV Tuning Data
3.PG Shifter Adjustment Data
4.Option Setting Data
5.Model Code

When IC6001 and/or B7751 are replaced, all above listed data become not available.

These data is backing up by using the power souse of:

*AC Connected : AC Power souse
*AC Disconnected :Back-up Battery (B7751).

1-1-1. REPLACING PROCEDURE[IC6001/B7751]

[1. PREPARATION]

Before replacing IC6001 and/or B7751:

a). Take a note that stored TV broadcast channels. (Because, its user may store TV broadcasts by manually other than "Auto Tuning" operation and it is also erased.)

b). Back-up the Programme Navigation data. (The Programme Navigation data is transferable by using "Programme Navigation Data Back-up Tool (VFK1493P)")(You may make it by referring following schematic diagram.)

-NECESSARY STATUS OF THE VCR UNIT-

(1).The IC6001 should be communicable with the Programme NAVI.Back-up Tool.(VFK1493P) .

(2).The "NAVI" data has to be available in IC6001.

NOTE: During servicing, do not make short IC6001-pin 37 (5V) with other line/Components, otherwise, IC6001 may be broken.

[2. HOW TO CONFIRM THE "NAVI." DATA WITHOUT INSERTING A TAPE INTO A VCR?]

(1).Indicate the "NAVI" mark in the Front Information Panel. (Press the Menu button and select the option, then set the "NAVI" to ON mode.)

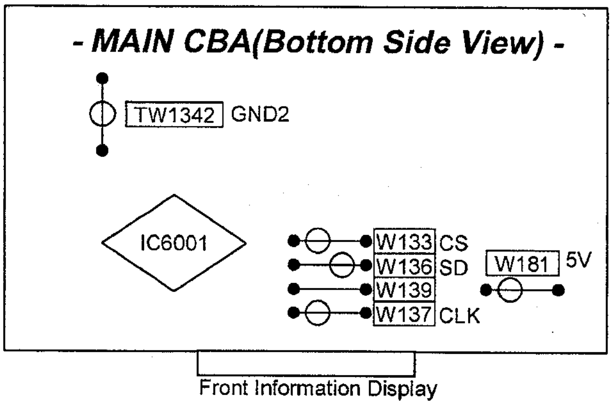
(2).Turn on the Service Mode and press the "NAVI" button on the Remote Controller in more than 5 seconds. The "NAVI" data list is displayed on the Monitor. (Press the "MENU" button on the Remote Controller for cancellation.)

[3. REPLACING PROCEDURE IN STEPS]

STEP1. PREPARATION

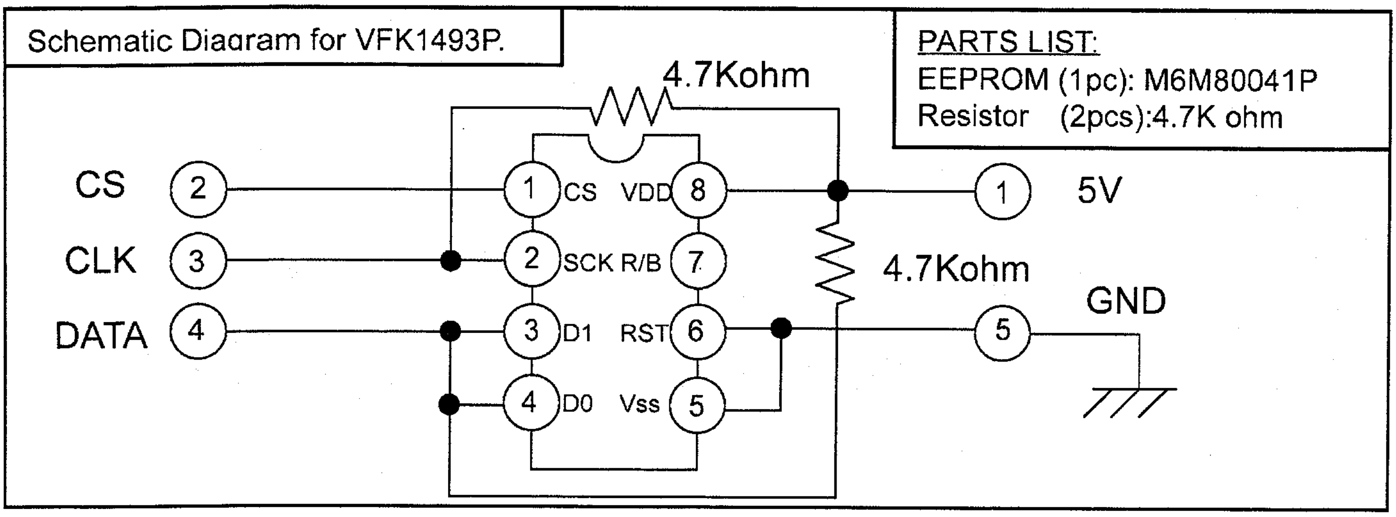
(1).Remove the C.B.A. with Mechanism unit by referring the Disassembly procedure.

(2).Connect the VFK1493P by referring the following figure.



VFK1493P (Terminal Name)	MAIN CBA (Place to be connect)
5V	W181
CS(Chip Select)	W133
CLK(S.Clock)	W137
DATA(S.DATA)	W136
GND	TW1342

Fig.S1



Schematic Diagram for VFK1493P.

PARTS LIST:
EEPROM (1pc): M6M80041P
Resistor (2pcs):4.7K ohm

Fig.S2

STEP2. "NAVI" DATA BACK-UP

PROCEDURE	F.I.P.DISPLAY
Turn on the Service Mode. 1. Press FF and EJECT keys simultaneously for more than 3 seconds.	0 00 00
Turn on the Service Mode 2. 2. Press the FF and EJECT keys in twice.	2 00 00
Turn on the Set-up mode. 3. Press the EJECT key for more than 3 seconds.	2 00
Turn on the mode 6. 4. Press the CH UP key in 3 times.	2 6 00
Activate the Back-up. 5. Press the FF key for more than 3 seconds.	2 6 **
(OK) "UP" is displayed when the Back-up process has been done successfully.	2 6 up
(NG) "31" is displayed when the Back-up process has not been done successfully.	2 6 31
("31" is displayed mainly when the connection failure and ROM failure of VFK1493P occurred. Confirm them and try again.)	

STEP3. REPLACE THE IC6001 AND/OR B7751

1). Disconnect the AC plug and replace the IC6001 and/or B7751.(Do not make a short circuit between IC6001-pin37 and other pins/components.)

STEP4. RESET THE IC6001

1). Connect a jumper wire between TL6002 and TL6004 for a second to reset the Microprocessor IC6001.

STEP5. INPUT THE MODEL CODE & INITIALIZATION

2). Set up the model code by ordering the following table.

PROCEDURE	F.I.P.DISPLAY
Turn on the Service Mode 1. Press FF and EJECT keys simultaneously for more than 3 seconds.	0 00 00
Turn on the Service Mode 2 2. Press the FF and EJECT keys in twice.	2 00 00
Turn on the Initial Mode. 3. Press the EJECT key in more than 3 seconds.	2 00
Set the Mode 2. 4. Press the CH UP key in twice.	2 2 00

(To be continued on the top left.)

PROCEDURE	F.I.P.DISPLAY
Display the Setting Code. 5. Press the POWER Button. (POWER ON)	01 41
Enter the INITIAL code. 6. Set the INITIAL code by using REW, PLAY, STOP and FF keys. **NV-SJ400PMP : 0140** **NV-SJ400PM : 0141** **NV-FJ600PM : 0341**	01 40
Exit from Setting Mode. 7. Press the POWER Button. (POWER OFF)	2 2 00
Exit from Service Mode. 8. Press FF and EJECT keys simultaneously in 6 times.	**Normal Indication**

3). Select other than channel "2" for easy confirmation.

4). Make a short circuit TL7501 and TL7502 in twice, to initialize the IC6001 to be a same as factory shipment.
*Short Once : Channel indication goes off.
*Short Twice : Channel indication displays "2".

STEP6. NAVI.DATA WRITING/SAVING

1). Connect the Programme Navigation Data Back-up Tool (VFK1493P).

PROCEDURE	F.I.P.DISPLAY
Turn on the Service Mode. 1. Press FF and EJECT keys simultaneously for more than 3 seconds.	0 00 00
Turn on the Service Mode 2. 2. Press the FF and EJECT keys in twice.	2 00 00
Turn on the Back-up mode. 3. Press the EJECT key in more than 3 seconds.	2 00
Turn on the Back-up mode 6. 4. Press the CH UP key for 3 times.	2 6 00
Activate the NAVI. Data Writing. 5. Press the REW key in more than 3 seconds.	2 6 **
(OK) "dn" is displayed when the Back-up process has been done successfully.	2 6 dn
(NG) "32" is displayed when the Back-up process has not been done successfully.	2 6 32
("32" is displayed when the connection failure and ROM failure of VFK1493P occurred. Confirm them and try again.) Reset the Service Mode.	
6. Press the FF and EJECT keys simultaneously in 6 times.	**Normal Indication**
NOTE: Perform the PG SHIFTER ADJUSTMENT.	

1-1-2. CAUTION FOR AUTO TUNING

PROCEDURE

Auto Tuning will start by the following procedure.

1. Connect the DIN-RF Cable.
2. Connect the AC Mains Lead.
3. Turn on the VCR.
   Auto Tuning will start.
   Auto Tuning searches for TV stations from VHF minimum to UHF maximum and memorizes every tuned program position. Other program positions are skipped.
   Auto Tuning takes five or more minutes to complete its search.
   Do not touch the VCR during Auto Tuning.
   Auto Tuning will stop halfway, if the VCR is operated or the aerial lead and/or the mains lead are disconnected.
   In case the VCR stopped during Auto Tuning, the VCR have to be reset and restarted. See the following item 2.

NOTE

1. If the VCR is turned on with the antenna not connected, all channels are skipped. Therefore, firmly connect the antenna and then turn the VCR off and on again to execute Auto tuning.
2. **When Auto Tuning is canceled halfway, Auto Tuning is not executed even if the VCR is turned off and then turned on again.**
   In this case, Auto Tuning have to be restarted by the following procedure.
   - **(1) Press EJECT and remove the Video cassette.**
   - **(2) Keep ∧ and ∨ (UP/DOWN) on the VCR pressed simultaneously for 3 seconds or more during the VCR on.**
     The channel displayed on the VCR display disappears for a moment then changes to 2.
   - **(3) Turn off the VCR and then turn it on. Auto Tuning commences.**
3. If you turn the VCR off during Auto Tuning, Auto Tuning will stop halfway.
   The VCR should be reset and restarted by the item 2 in order to execute Auto Tuning.
4. If the VCR starts playback during Auto Tuning, Auto Tuning will stop halfway.
   The VCR should be reset and restarted by the item 2 in order to execute Auto Tuning.
5. To cancel Auto Tuning Mid-operation, press POWER during Auto Tuning (The VCR is turned off).
6. When the VCR is moved to the other area or country, TV broadcasts should be stored again.

1-1-3. CHECKING OF MAIN C.B.A.

When servicing the MAIN C.B.A., take out the MAIN C.B.A. and mechanism from the frame and turn over.

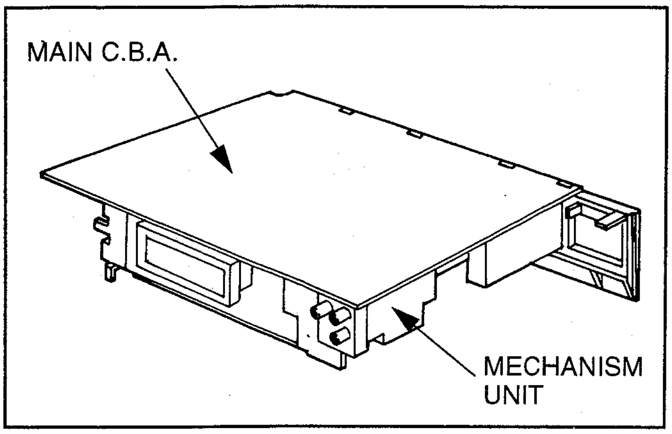


Fig.S3

1-1-4. REMOVAL OF CASSETTE TAPE

There are 2 ways to remove a cassette tape.

1. Removal of compulsory loading.
   1) Press FF and EJECT buttons simultaneously and set the Service Mode 7.
   2) Press STOP button in order to unload the mechanism. (Pay an attention of tape slack)
      Service Mode Indication:
      7 ※※ ※※ (STOP) → 7 00 ※※ (EJECT)
2. Removal of manual operation of Main cam gear.
   1) Disconnect the AC power cord and remove Top Panel.
   2) Rotate Main cam gear to the clockwise and unload the mechanism (Tape is remaining) (Fig.S4).

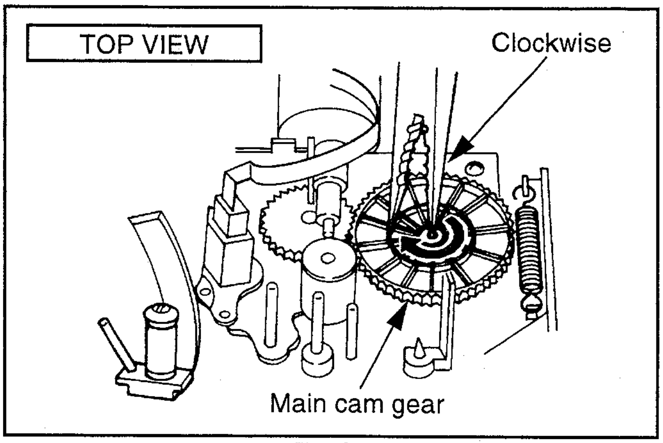


Fig.S4

3. Rotate the Pole of Capstan motor to the clockwise the from the bottom in order to remove the tape slag.

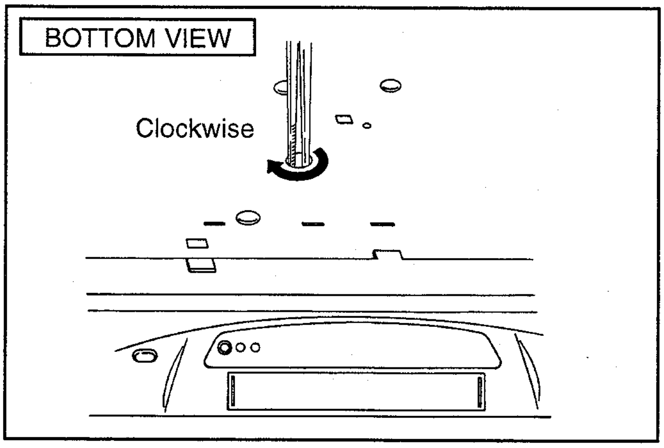


Fig.S5

4. Rotate Main cam gear to the clockwise in order to eject the cassette tape.

1-1-5. CYLINDER UNIT REPLACEMENT

A. CYLINDER UNIT REPLACEMENT

1. Remove the Mechanism unit from MAIN C.B.A./Chassis by referring "SECTION 2.Disassembly Procedure".
2. Remove the 3 screws (A) of the CYLINDER UNIT with a screw driver.
3. Unlock the 4 locking tabs (B) and disconnect the Cylinder flexible card from the FPC Holder.
4. Remove the CYLINDER UNIT.

[CAUTION]
Handle the Cylinder flexible card with care. When it damaged, you should replace whole Cylinder unit.

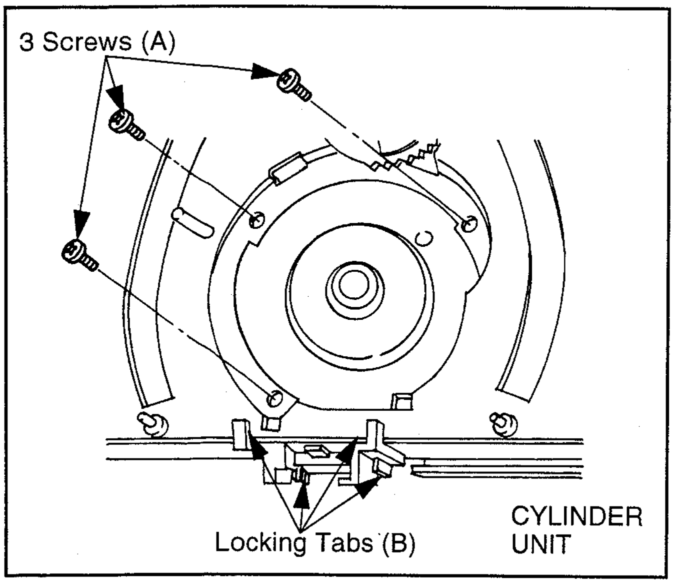

3 Screws (A)
Locking Tabs (B)
CYLINDER UNIT

Fig.S6

B. UPPER CYLINDER DISASSEMBLY

1. Remove 2 screws (A).
2. Remove the CYLINDER STATOR UNIT.
3. Remove 2 screws (B).
4. Remove the CYLINDER ROTOR UNIT.
5. Loose Hex screw (C) (1.5 mm) and remove the CYLINDER RETAINER.
6. Remove the UPPER CYLINDER.

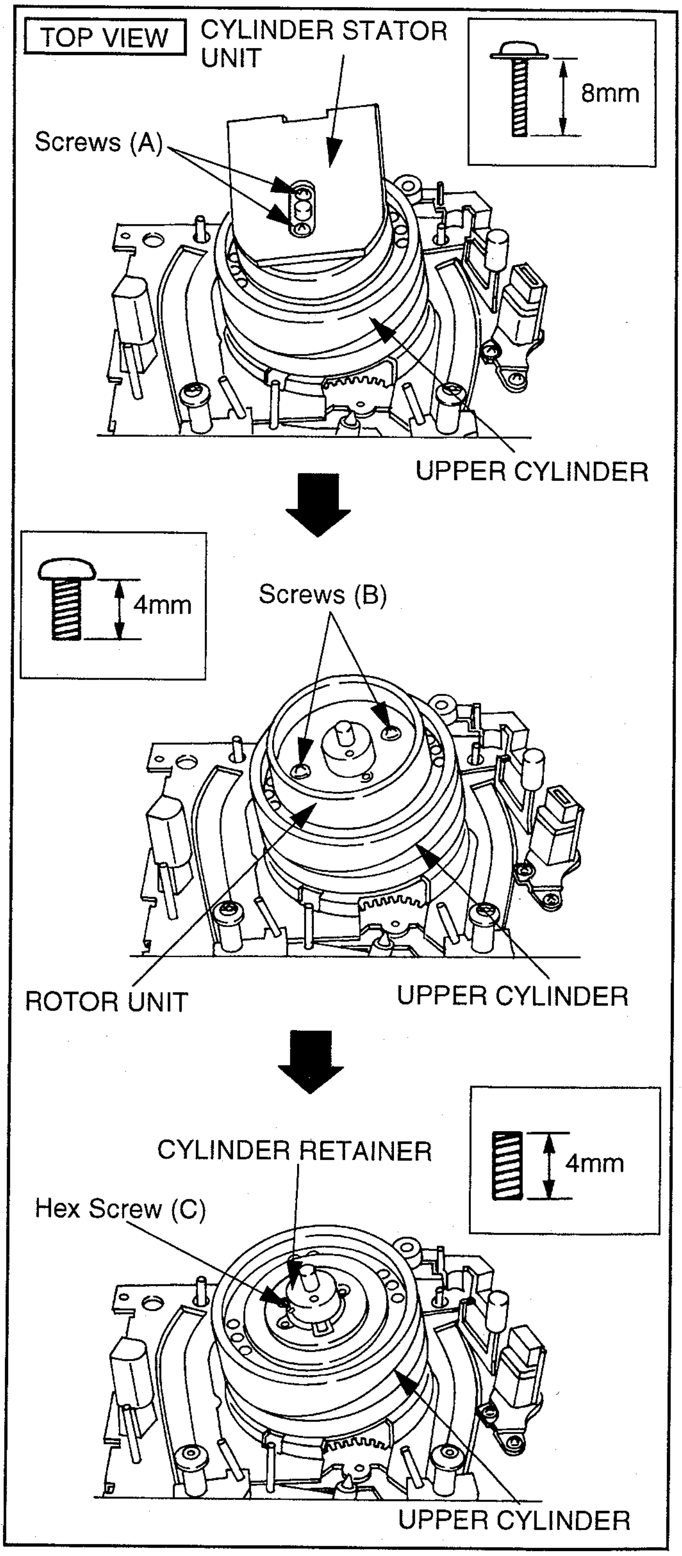

TOP VIEW
CYLINDER STATOR UNIT
8mm
Screws (A)
UPPER CYLINDER
4mm
Screws (B)
ROTOR UNIT
UPPER CYLINDER
CYLINDER RETAINER
4mm
Hex Screw (C)
UPPER CYLINDER

Fig.S7

C. UPPER CYLINDER ASSEMBLY

When reassembling, perform the steps in the reverse order.

Notes:

1) Install the Cylinder Retainer so that the 2 holes on top of the Cylinder Retainer are at right angles with the P5001 Connection.
2) Tighten the Hex screw (C) (1.5 mm) while pressing down on top of the Cylinder Retainer.

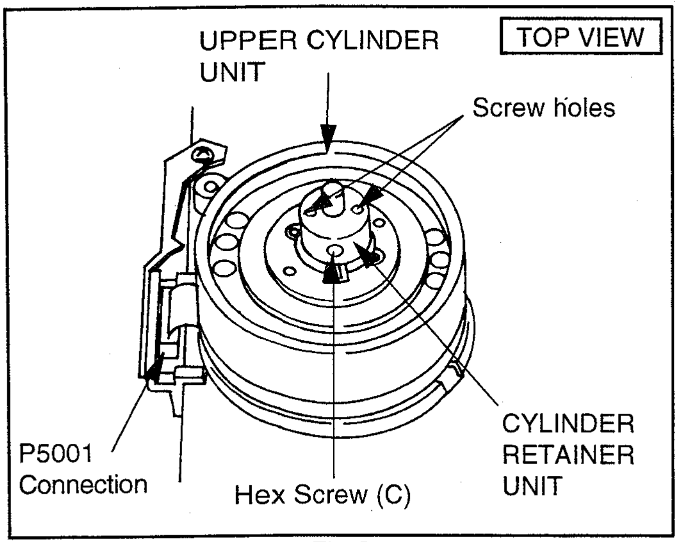

UPPER CYLINDER UNIT
TOP VIEW
Screw holes
P5001 Connection
Hex Screw (C)
CYLINDER RETAINER UNIT

Fig.S8

3) Install the Cylinder Rotor Unit so that the inner hole of the Cylinder Rotor Unit fits to the small projection (D) on top of the Upper Cylinder.
4) Tighten 2 screws (B).

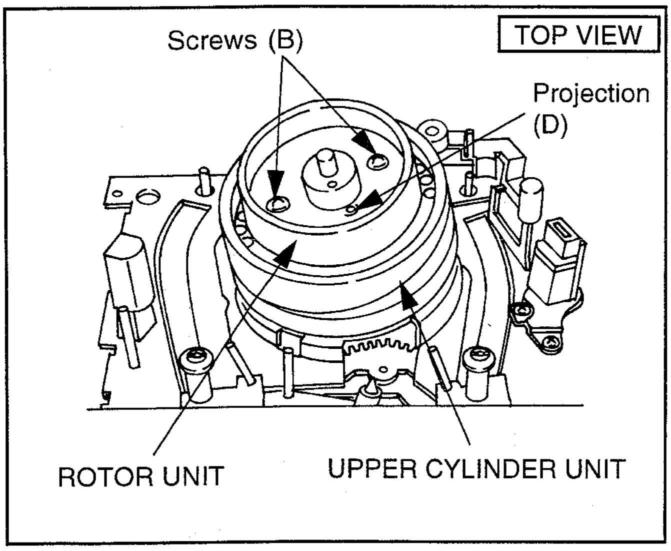

Screws (B)
TOP VIEW
Projection (D)
ROTOR UNIT
UPPER CYLINDER UNIT

Fig.S9

5) Install the Cylinder Stator Unit.
6) Tighten 2 screws (A).

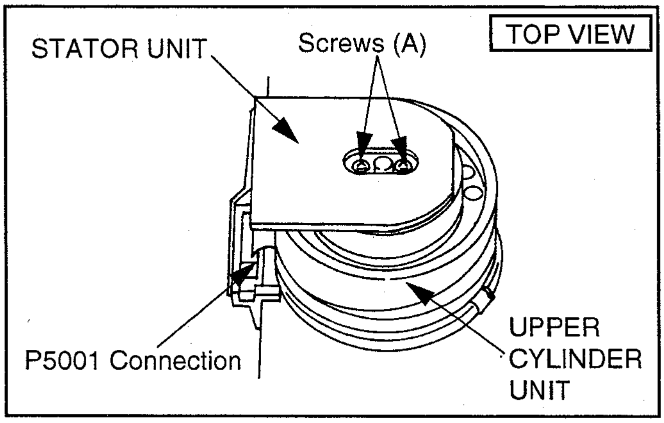

STATOR UNIT
Screws (A)
TOP VIEW
P5001 Connection
UPPER CYLINDER UNIT

Fig. S10

7) Confirm the PG SHIFTER ADJUSTMENT with the alignment tape (NTSC: VFM8080HQFP) and adjust it if necessary.

1-1-6. FLAT CARD CABLE INSTALLATION

When installing the Flat Card Cable on the connector, install the Flat Card Cable with the cable contacts facing the connector contacts.

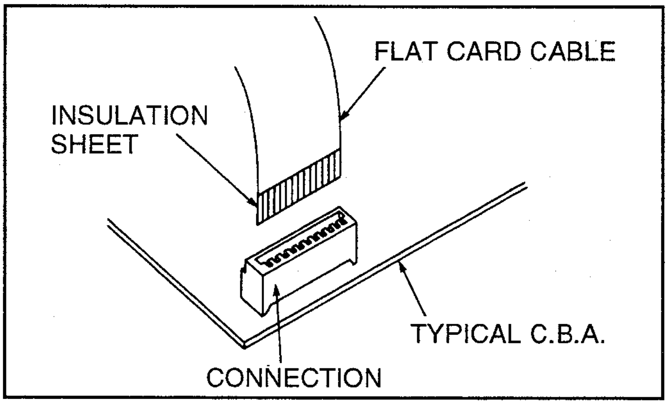

FLAT CARD CABLE
INSULATION SHEET
TYPICAL C.B.A.
CONNECTION

Fig. S11

1-2. SELF-TEST & SERVICE INFORMATION DISPLAY

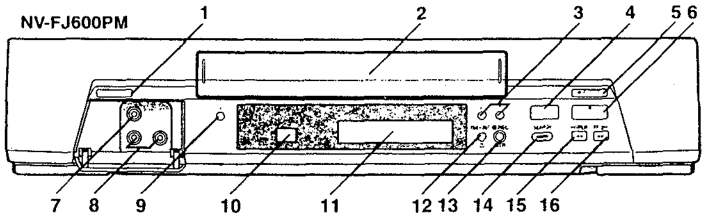
Refer to the Service Manual for Z Mechanism Chassis. (Order No.: VRD9802005C2)

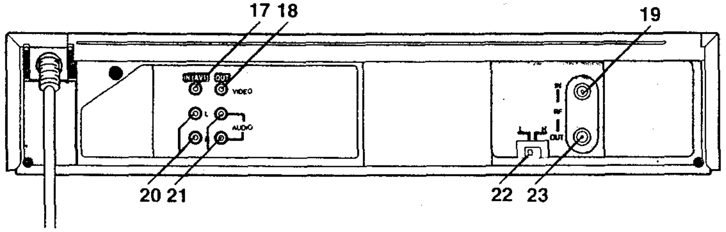
1-3. OPERATING INSTRUCTIONS

Controls and Connection Sockets

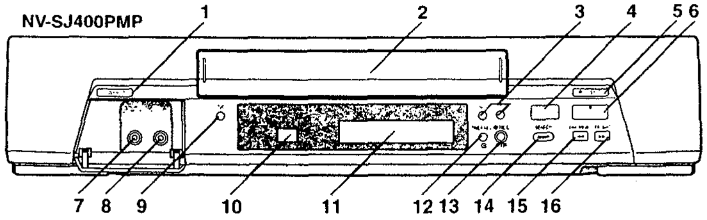
This section describes in detail the function of each button, switch and connection socket.

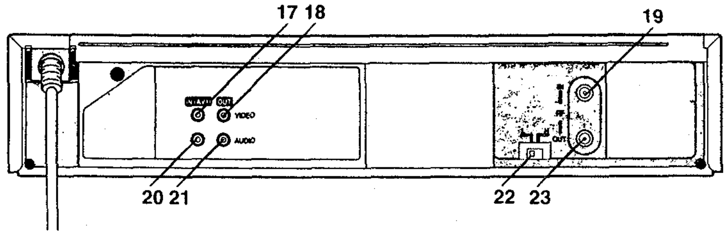
NV-FJ600PM


1
2
3
4
5 6
7
8
9
10
11
12 13
14
15
16


17 18
19
20 21
22 23
VIDEO
AUDIO
OUT

NV-SJ400PMP


1
2
3
4
5 6
7
8
9
10
11
12 13
14
15
16


17 18
19
20 21
22 23
VIDEO
AUDIO
OUT

FRONT

1 POWER ⏻/I (POWER ⏻) (☞ 12)

2 Cassette Compartment (☞ 23)

3 ∨ ∧ (☞ 12, 35)

4 STOP □ (☞ 23, 25)

5 ▲ EJECT (☞ 13)

6 PLAY ▷ (☞ 23)

7 VIDEO IN (AV2) (☞ 34)

8 AUDIO IN (AV2) (☞ 34)

9 CVC (Crystal View Control) (☞ 20)

10 Infra-red Remote Control Receiver Window

11 Display

12 TIMER REC ◫ (☞ 28)

13 ● REC/OTR (☞ 27)

14 SEARCH (☞ 33)

15 REW (REWIND) ▶▶ (☞ 23)

16 FF (FAST FORWARD) ◀◀ (☞ 23)

REAR

17 VIDEO IN (AV1) (☞ 34)

18 VIDEO OUT (☞ 10)

19 RF IN (☞ 9)

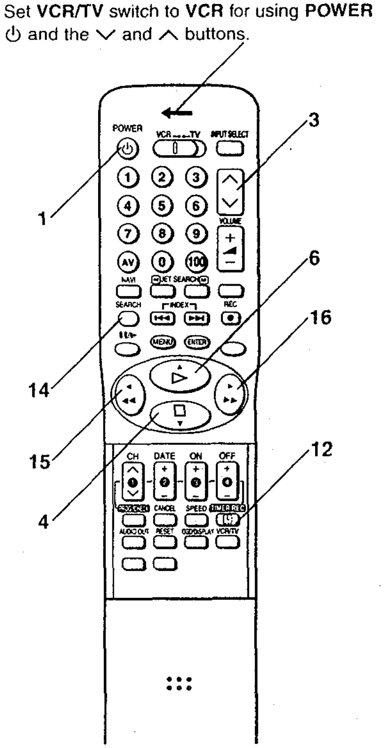
20 AUDIO IN (AV1) (☞ 34)

21 AUDIO OUT (☞ 10)

22 L/H (☞ 12)

23 RF OUT (☞ 9)

Set **VCR/TV** switch to **VCR** for using **POWER** ⏻ and the ∨ and ∧ buttons.

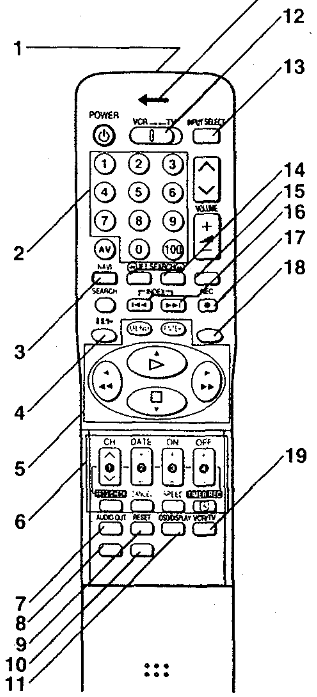

POWER
VCR — TV
INPUT SELECT
1
2
3
4
5
6
7
8
9
AV
0
100
VOLUME
NAVI
JET SEARCH
SEARCH
INDEX
REC
MENU
ENTER
CH
DATE
ON
OFF
CANCEL
SPEED
TIMER REC
AUDIO OUT
RESET
OSD/DISPLAY
VCR/TV
1
3
6
16
14
15
4
12

Infra-red Remote Controller

The remote control unit for this VCR is a universal remote controller. As such, some of its buttons are not used to operate this VCR.

VCR OPERATION

Set **VCR/TV** switch to **VCR** for using the **numeric buttons.**


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
POWER
VCR — TV
INPUT SELECT
VOLUME
NAVI
JET SEARCH
SEARCH
INDEX
REC
CH
DATE
ON
OFF
AUDIO OUT
RESET
OSD/DISPLAY
VCR/TV

1 **Infra-red Transmitter**

2 **Numeric Buttons** (☞ **16, 25)**
Selects program positions of the VCR.
- Ensure that **VCR/TV** switch is set to **VCR.**

9: ⓪ → ⑨
19: ① → ⑨
109: (100) → ⓪ → ⑨

3 **NAVI** (☞ **31)**

4 **II/I▸ (PAUSE/SLOW)** (☞ **23)**

5 **On Screen Display Menu Operation Buttons** (☞ **14)**

MENU

ENTER

▲▼◀▶

6 **Timer Recording Operation Buttons** (☞ **28–30)**

CH, DATE, ON, OFF

PROG./CHECK

CANCEL

SPEED

TIMER REC ⏲

7 **AUDIO OUT** (☞ **19)**

8 No function.
This button is not used to operate this VCR.

9 **RESET** (☞ **20)**

10 No function.
This button is not used to operate this VCR.

11 **OSD/DISPLAY** (☞ **19, 26)**
When this button is pressed for the first time, it makes the On Screen Display appear on the TV screen.
From the second times, it changes the indication on the VCR display or On Screen Display as follows.

→ Clock → Counter → Remaining Tape Time

12 **VCR/TV switch**

13 **INPUT SELECT** (☞ **34)**

14 ◂◂ **JET SEARCH** ▸▸ (☞ **24)**

15 No function.
This button is not used to operate this VCR.

16 **INDEX** |◀◀, ▶▶| (☞ **33)**

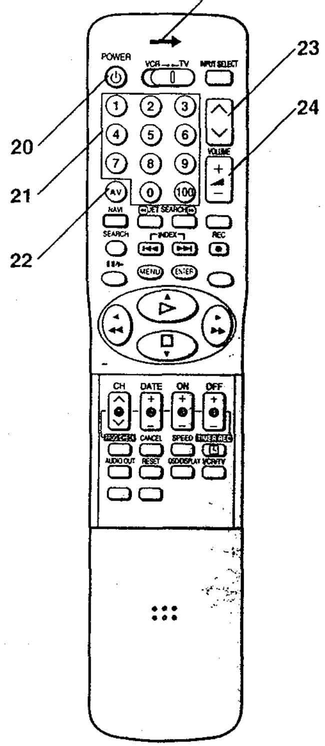
17 **REC ●** (☞ **25)**

18 No function.
This button is not used to operate this VCR.

19 **VCR/TV** (☞ **12)**

TV OPERATION

Set **VCR/TV** switch to **TV** for using **POWER** ⏻, the ∨ and ∧ buttons and the **numeric buttons.**


20
21
22
23
24
POWER
VCR — TV
INPUT SELECT
VOLUME
NAVI
JET SEARCH
SEARCH
INDEX
REC
MENU
ENTER
CH
DATE
ON
OFF
CANCEL
SPEED
AUDIO OUT
RESET
OSD/DISPLAY
VCR/TV

20 **POWER** ⏻
Press to switch the TV from on to standby mode or vice versa. In standby mode, the TV is still connected to the mains.
- With some TV models, it may only be possible to switch the TV to the standby mode using this button.
  In this case, use **AV** or the ∨ and ∧ buttons to switch the TV on.
- Ensure that **VCR/TV** switch is set to **TV**.

21 **Numeric Buttons**
Selects program positions of the TV.
- Ensure that **VCR/TV** switch is set to **TV**.

22 **AV**
Selects TV input or AV input.

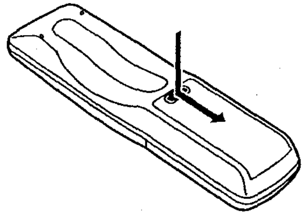
23 ∨ ∧
Selects the required program position (TV station) of the TV.
- Ensure that **VCR/TV** switch is set to **TV**.

24 **VOLUME** – ◢ +
Adjusts the volume of the TV.

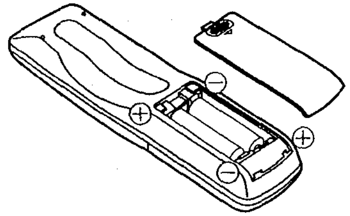
Remote Controller Setup

Installing the Batteries

1 To remove the cover, slide it in the direction of the arrow while pressing down.



2 Load the batteries with their polarity (⊕ and ⊖) aligned correctly.



3 Slide the cover back on.

Power Source for the Remote Controller
The remote controller is powered by 2 "AA", "UM3" or "R6" size batteries. The life of the batteries is about one year, although this depends on the frequency of use.

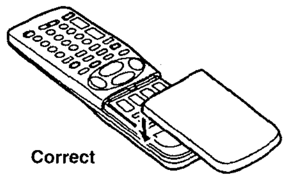
Precautions for Battery Replacement

- Load the new batteries with their polarity (⊕ and ⊖) aligned correctly.
- Do not apply heat to the batteries, or an internal short circuit may occur.
- If you do not intend to use the remote controller for a long period of time, remove the batteries and store them in a cool and dry place.
- Remove spent batteries immediately and dispose of them.
- Do not use an old and a new battery together, and never use an alkaline battery with a manganese battery.
- Do not use rechargeable batteries.

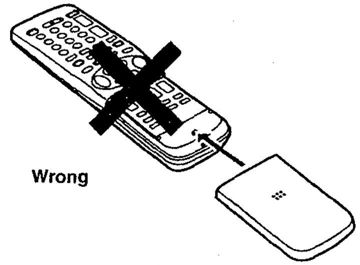
If the Sliding Cover of the Remote Controller becomes Detached

If the sliding cover of remote controller becomes detached by mistake, fit it securely in place by putting it on top of the remote controller and pushing it down until it clicks into position, as shown in the figure below.

- It is not possible to fit the sliding cover in place by pushing it from the bottom end of the remote controller.
  Do not attempt to do this.



Correct



Wrong

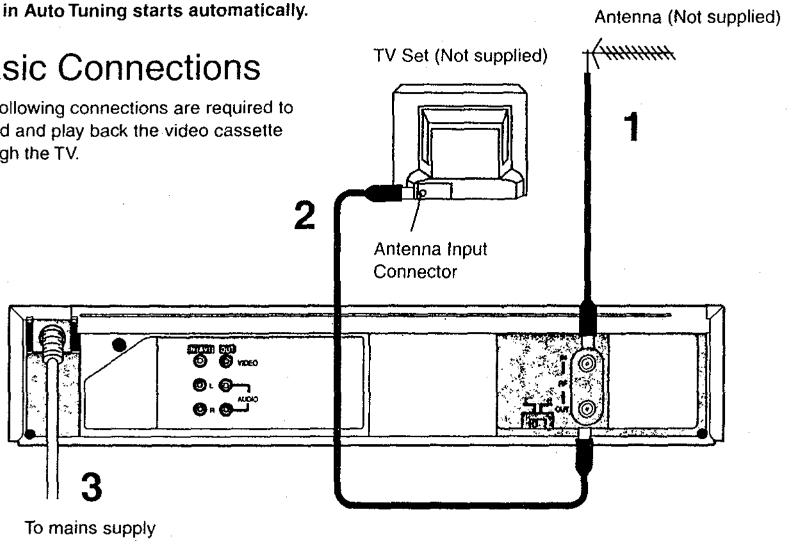
Connections

This section shows you how to connect the VCR to an antenna, TV, etc.

When the VCR is turned on after connecting the antenna cable and the AC power cord, Plug in Auto Tuning starts automatically.

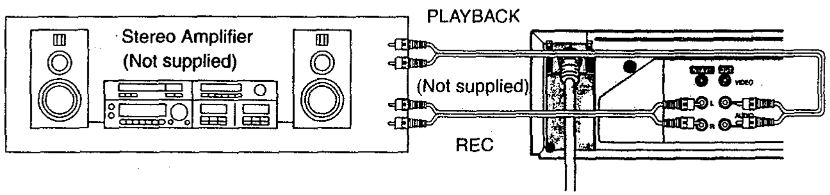
Basic Connections

The following connections are required to record and play back the video cassette through the TV.

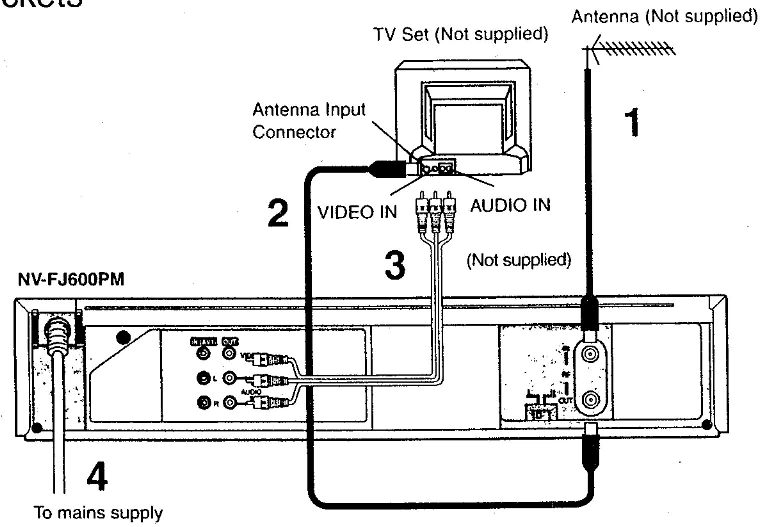


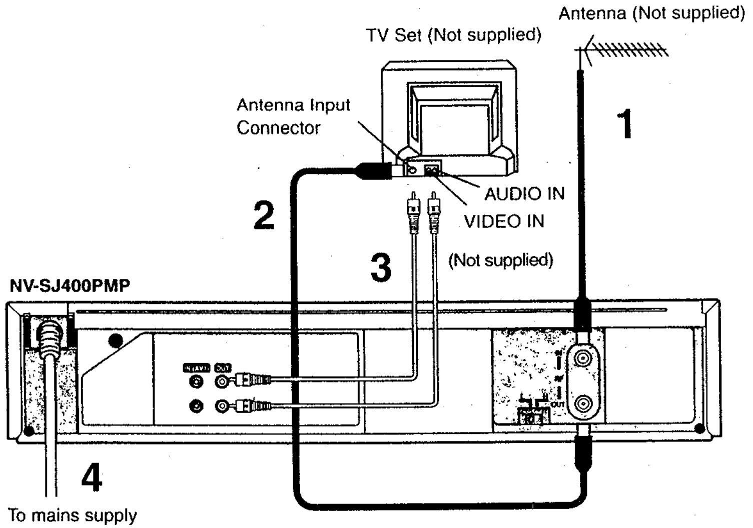
- Use the plug adaptor supplied if it is needed to fit the shape of the power outlet which will be used.

•Connection to a Stereo Amplifier (NV-FJ600PM only)



Connection to a TV using the Audio/Video Input Sockets


TV Set (Not supplied)
Antenna (Not supplied)
Antenna Input Connector
1
2
VIDEO IN
AUDIO IN
3
(Not supplied)
NV-FJ600PM
4
To mains supply


TV Set (Not supplied)
Antenna (Not supplied)
Antenna Input Connector
1
2
AUDIO IN
VIDEO IN
3
(Not supplied)
NV-SJ400PMP
4
To mains supply

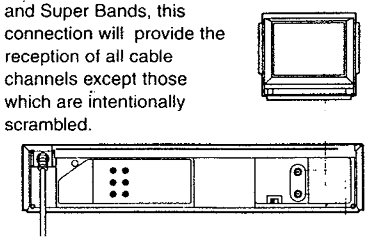
Cable Connection

Cable-VCR-TV (For CATV/PAY Channels Recording/Playback)

The VCR has an extended range, and can tune the Low-Band, Mid-Band, Super-Band, Hyper-Band, Ultra-Band, and Special cable channels (Channels A-5–A-1, A–W, AA–FFF, GGG–WWW, WWW+1–WWW+12, 100–125, 5A). Also, the VCR can tune to any of the 56 UHF channels (14–69). Refer to **Storing TV Broadcasts in your VCR** on page 14.

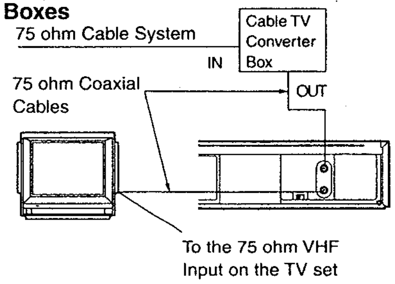
BASIC Hook-Up

Since the VCR can tune Mid and Super Bands, this connection will provide the reception of all cable channels except those which are intentionally scrambled.

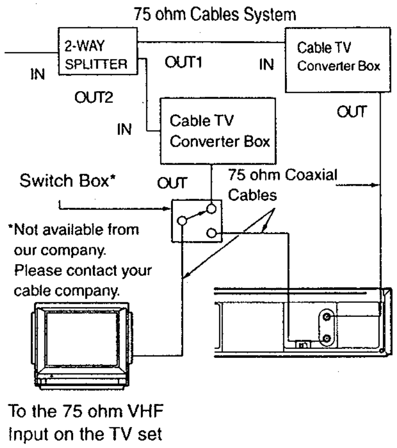

75 ohm Coaxial Cable

However, if you subscribe to a special channel which is scrambled you will probably have a descrambler box for proper reception. The VCR by itself cannot properly receive a scrambled program since it does not contain a descrambler. In order for the VCR to properly receive a scrambled program, your existing descrambler must be used. There are two commonly used methods of connection in this case.

Typical Cable System Hook Ups with Cable Converter/Descrambler Boxes


75 ohm Cable System
Cable TV Converter Box
IN
OUT
75 ohm Coaxial Cables
To the 75 ohm VHF Input on the TV set

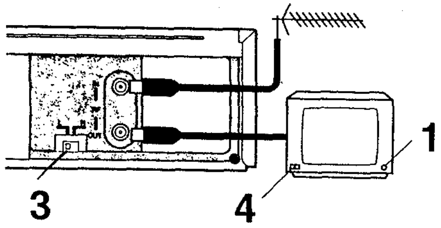
The cable hook-up shown at the bottom left allows VCR-TV functions except for viewing one channel while recording another.

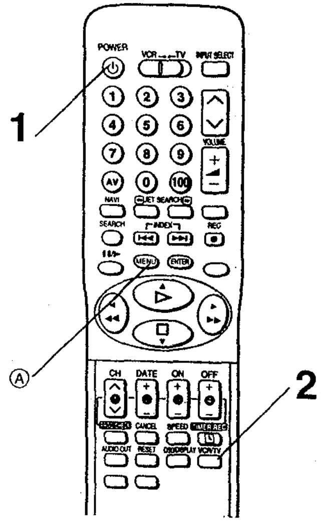

75 ohm Cables System
IN
2-WAY SPLITTER
OUT1
IN
Cable TV Converter Box
OUT2
IN
Cable TV Converter Box
OUT
Switch Box*
OUT
75 ohm Coaxial Cables
*Not available from our company. Please contact your cable company.
To the 75 ohm VHF Input on the TV set

The above cable hook-up allows VCR functions, including viewing one channel while recording another, but it requires two cable TV Converter/Descrambler Boxes, one Switch Box and one 2-Way Splitter.

Since the VCR has an extended range of tuning, tuning-programing of non-scrambled Mid-Band and Super-Band TV programs is possible. When a cable converter or descrambler box is connected to the VCR, all timer-controlled recording functions will continue to operate with the exception of charging channels automatically. CATV Channel selection will have to be performed with the cable converter. Timer-controlled recording from CATV Channels is therefore limited to one channel at any given time.

Tuning the TV to your VCR





The VCR supplies a signal to the TV via the RF coaxial cable on channel US3 or 4.
It is possible to view the video picture on your TV in the same way that you watch TV broadcasts.
If you have connected the VCR to the TV through the video and audio input sockets, then you do not need to follow the procedure below.

When the VCR is turned on after unpacking and connecting the antenna cable and the AC power cord, Plug in Auto Tuning starts automatically.

Notes:
- If the VCR is turned on with the antenna not connected, all channels are skipped.
- When Auto Tuning is canceled halfway, Auto Tuning is not executed even if the VCR is turned off and then turned on again. In this case, see page 13 **"To restart Plug in Auto Tuning"**.

Operations

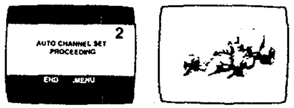
1 Press **POWER** ⏻ to turn on the TV and VCR.
Ensure that the VCR is connected to the antenna cable.
●Auto Tuning starts. (See page 13.)

2 Press **VCR/TV** to select the VCR mode.

3 Using **L/H** select the video playback channel not used for any TV station.
H: Channel US4
L: Channel US3

4 Select a program number on the TV which you wish to use as the video viewing channel. Then tune in the TV to the picture from the screen being auto tuned or the screen selected with the ∨ and ∧ buttons of the VCR.
●During Auto Tuning, the TV program screen does not appear, and the Auto Tuning screen appears instead.

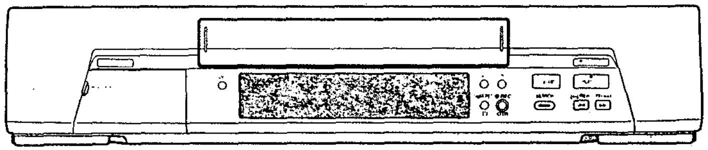
On Screen Display



(During Plug in Auto Tuning)

(After Plug in Auto Tuning)

Plug in Auto Tuning

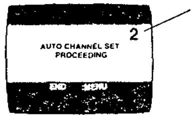


The VCR is fitted with its own tuner (just like a normal TV) and can be preset to receive up to 181 TV broadcast stations.

Plug in Auto Tuning

When the VCR is turned on after connecting the antenna cable and the AC power cord, Auto Tuning starts.

On Screen Display



Channel being searched

Auto Tuning searches for TV stations from VHF minimum to UHF maximum and memorizes every tuned program position.
- If you turn the VCR off during Auto Tuning, Auto Tuning will stop halfway.
- If the VCR starts playback during Auto Tuning, Auto Tuning will stop halfway.
- When there are 5 more CATV channels, the antenna system CATV is automatically selected; when there are 4 or fewer CATV channels, the TV is selected. If a change is required, conduct the resetting procedure described in step **4** on page 14.

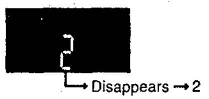
To Cancel Auto Tuning Mid-Operation:

Press **POWER** ⏻/I or **MENU** Ⓐ during Auto Tuning. Auto Tuning is cancelled.

To restart Plug in Auto Tuning:

1 Press ⏏ **EJECT** and remove the video cassette.
2 Keep the ∨ and ∧ buttons on the VCR pressed simultaneously for 3 seconds or more during the VCR on.
●The channel displayed on the VCR display disappears for a moment then changes to 2.

Display Symbol



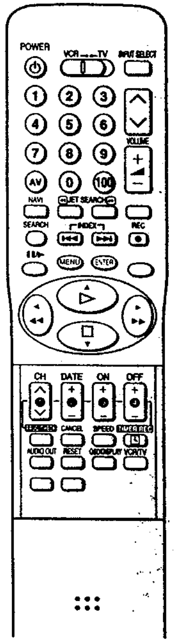
3 Turn off the VCR and then turn it on.
Press **VCR/TV** to select the VCR mode.
●Auto Tuning commences.

Storing TV Broadcasts in your VCR

Auto Tuning Using the On Screen Display

Introduction

The VCR is tuned automatically by Plug in Auto Tuning. However, Auto Tuning using the On Screen Display should be performed according to the following method if necessary.


POWER
VCR—TV
INPUT SELECT
1
2
3
4
5
6
7
8
9
AV
0
100
VOLUME
NAVI
QUIET SEARCH
SEARCH
INDEX
REC
MENU
ENTER
CH
DATE
ON
OFF
CANCEL
SPEED
AUDIO OUT
RESET

Notes:

- Auto Tuning searches for TV stations from VHF minimum to UHF maximum and memorizes every tuned program position. Other program positions are skipped.
- Auto Tuning takes three or more minutes to complete its search.
- If the VCR is not correctly tuned by Auto Tuning, follow the procedure on the next page.

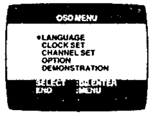
Preparations

- Confirm that the TV is on and the VCR viewing channel is selected.
- Turn on the VCR and select any program position except A1 or A2.
- Press **VCR/TV** to select the VCR mode.

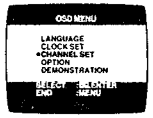
Operations

On Screen Display

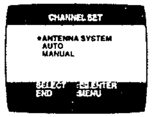
1 Press **MENU.**


OSD MENU
•LANGUAGE
CLOCK SET
CHANNEL SET
OPTION
DEMONSTRATION
SELECT :▲▼ ENTER
END :MENU

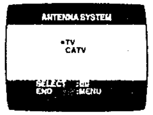
2 Select **CHANNEL SET** by pressing ▲ or ▼ and then press **ENTER**.


OSD MENU
LANGUAGE
CLOCK SET
•CHANNEL SET
OPTION
DEMONSTRATION
SELECT :▲▼ ENTER
END :MENU

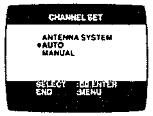
3 Select **ANTENNA SYSTEM** by pressing ▲ or ▼ andthen press **ENTER**.

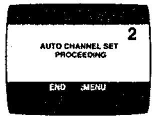

CHANNEL SET
•ANTENNA SYSTEM
AUTO
MANUAL
SELECT :▲▼ ENTER
END :MENU

4 Select the desired system by pressing ▲ or ▼ andthen press **MENU**.


ANTENNA SYSTEM
•TV
CATV
SELECT :▲▼
END :MENU

5 Select **AUTO** by pressing ▲ or ▼ and then press **ENTER**.
•When Auto Tuning is completed, the on screen display disappears and the lowest channel position at which a broadcast can be tuned in is received.


CHANNEL SET
ANTENNA SYSTEM
•AUTO
MANUAL
SELECT :▲▼ ENTER
END :MENU

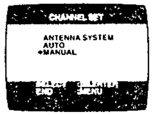

2
AUTO CHANNEL SET
PROCEEDING
END :MENU

Manual System Setting Procedure

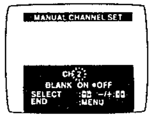
Follow steps **1** to **4** on page 14.

5 Select **MANUAL** by pressing ▲ or ▼ and then press **ENTER**.

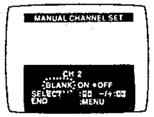
On Screen Display


CHANNEL SET
ANTENNA SYSTEM
AUTO
•MANUAL
END :MENU

6 Select **CH** by pressing ▲ or ▼ and then select the program position by pressing ◀ or ▶.


MANUAL CHANNEL SET
CH 2
BLANK ON •OFF
SELECT :▲▼ –/+:◀▶
END :MENU

7 Select **BLANK** by pressing ▲ or ▼ and then select the program position by pressing ◀ or ▶.


MANUAL CHANNEL SET
CH 2
BLANK ON •OFF
SELECT :▲▼ –/+:◀▶
END :MENU

- To select the blanking of a program position, select **ON**.
- Repeat steps **6** and **7** for another unoccupied program positions to skip during the selection of the program positions.

8 Press **MENU** three times.

Channel Plan
TV mode

CHANNEL DESIGNATIONS	CHANNEL RECEIVED OF THE AIR	CHANNEL SELECTION & INDICATION ON VCR
VHF	2–13	2–13
UHF	14–69	14–69

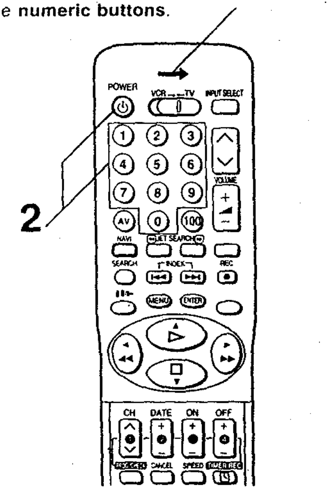
CATV mode

CHANNEL DESIGNATIONS	CHANNEL RECEIVED FROM CABLE	CHANNEL SELECTION & INDICATION ON VCR
BROADCAST VHF	2–13	2–13
CATV LOW BAND	A-5–A-1	95–99
CATV MID/ SUPER BANDS	A–W	14–36
CATV HYPER BAND	AA–FFF	37–65
ULTRA BAND	GGG–WWW WWW+1– WWW+12	66–94
	100–125	100–125
SPECIAL CATV CHANNEL	5A	1

Setting the Remote Controller for Operation of your TV

You can operate the TVs of the manufacturers listed below with the remote controller after setting it.

Set **VCR/TV** switch to **TV** for using **POWER** ⏻, the ∨ and ∧ buttons and the **numeric buttons**.



2
POWER
VCR TV
INPUT SELECT
VOLUME
NAVI
QUICK SEARCH
SEARCH
INDEX
REC
CH
DATE
ON
OFF
CANCEL
SPEED

01	Panasonic/National QUASAR
02	Panasonic/National QUASAR
03	MAGNAVOX SYLVANIA PHILIPS (RC-5)
04	ZENITH
05	THOMSON RCA GE
06	SHARP
07	SHARP
08	SONY
09	TOSHIBA
10	SANYO FISHER
11	JVC
12	HITACHI PHILCO
13	MITSUBISHI
14	SAMSUNG
15	GOLDSTAR/LG
16	GOLDSTAR/LG
17	GOLDSTAR/LG
18	SAMSUNG

Preparation
Install the batteries in the remote controller.

Operations

1 Find the manufacturer number of your TV while referring to the following table.

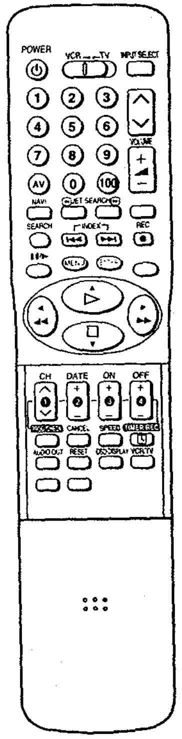
2 While holding down **POWER** ⏻, use the **numeric buttons** to enter the manufacturer number. This completes the settings for the TV manufacturer.
- Be sure to enter the number in two digits.
  Example: 1→01

3 To confirm that the correct settings were made, check whether the TV can be operated properly.
- When a manufacturer has multiple numbers in the following table, try entering other numbers if the TV operations cannot be performed properly, and then select the optimal number.

Notes:
- If you are using a Panasonic TV, this setting has already been made, and so you do not need to perform the above setting procedure. However, this remote controller may not work with some Panasonic TVs.
- Some TV models cannot be operated using this remote controller (including all TVs non-remote compatible).

Language Setting of the On Screen Display

Preparations
- Confirm that the TV is on and the VCR viewing channel is selected.
- Turn on the VCR.
- Press **VCR/TV** to select the VCR mode.



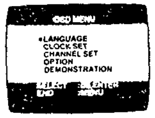
POWER
VCR TV
INPUT SELECT
VOLUME
NAVI
QUICK SEARCH
SEARCH
INDEX
REC
CH
DATE
ON
OFF
CANCEL
SPEED
RESET

To Select the Desired Language

Select one of the four languages displayed: English, Spanish, Portuguese and French.

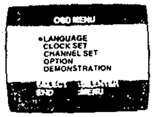
On Screen Display

1 Press **MENU**.



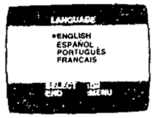
OSD MENU
•LANGUAGE
CLOCK SET
CHANNEL SET
OPTION
DEMONSTRATION
SELECT
ENTER
END
MENU

2 Select **LANGUAGE** by pressing ▲ or ▼ and then press **ENTER**.



OSD MENU
•LANGUAGE
CLOCK SET
CHANNEL SET
OPTION
DEMONSTRATION
SELECT
ENTER
END
MENU

3 Select the desired language by pressing ▲ or ▼.



LANGUAGE
•ENGLISH
ESPAÑOL
PORTUGUÊS
FRANCAIS
END
MENU

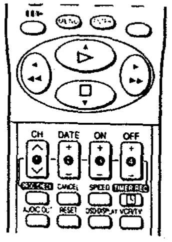
4 Press **MENU** twice.

Setting the Clock of your VCR

The built-in digital clock is used to activate the timer for automatic recording and must be set to the correct time. It employs the 24-hour system.

Preparations

- Confirm that the TV is on and the VCR viewing channel is selected.
- Turn on the VCR.
- Press **VCR/TV** to select the VCR mode.



Example:

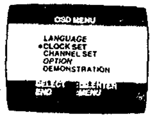
Date; 16 October (During daylight saving time), 2005

Time; 20:15

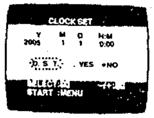
Operations

1 Press **MENU.**

2 Select **CLOCK SET** by pressing ▲ or ▼ and then press **ENTER**.



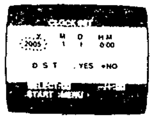
3 Set **D.S.T.**(Daylight Saving Time) by pressing ▲ or ▼.



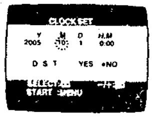
- •Select **YES** to set daylight saving time. The time on the clock is advanced by 1 hour.
- •Select **No** to return to standard time. The time on the clock is set back by 1 hour.
- •Press ▶ to set each time.
- •Press **MENU** when not setting each time.

4 Set each item by pressing ▲ or ▼ and ▶. Press ◀ to return to the previous item.

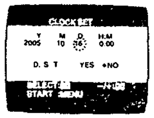
Set **Year** to "2005".



Set **Month** to "10".

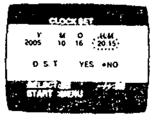


Set **Date** to "16".



Set **Time** to "20:15".

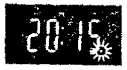
- •When it is kept pressed, the indication changes in 30-minute steps.
- •There is no need to press ▶.



5 Press **MENU.**

- •The clock starts.

Display Symbol



Note:
The clock operates for at least 5 years on its backup system in the event of a power failure.

Time Reset Function

If the clock is less than two minutes slow or fast, it can easily be reset to the proper time.

Example: Resetting the clock to 12:00.00

1 Select **CLOCK SET** from the OSD menu and press **ENTER**.

2 When the current clock display on the VCR is between 11:58.00 and 12:01.59, press **MENU** as soon as you hear the 12:00.00 signal. This resets the time to 12:00.00.

Settings Using the On Screen Display

Preparations

- Confirm that the TV is on and the VCR viewing channel is selected.
- Turn on the VCR.
- Press **VCR/TV** to select the VCR mode.

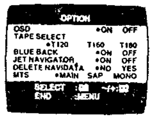
On Screen Display

1 Press **MENU**.

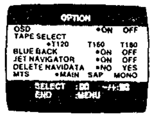
On Screen Display

2 Select **OPTION** by pressing ▲ or ▼ and then press **ENTER**.

3 Select **OSD** by pressing ▲ or ▼.



4 Select **ON** or **OFF** by pressing ◀ or ▶.

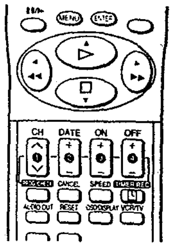


ON: The on screen display will appear on the TV screen for 5 seconds.

- •The on screen display will always appear on the TV screen during rewind and fast forward .

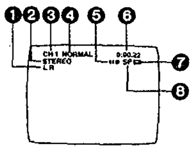
OFF:The on screen display will not appear.

5 Press **MENU** twice to make the on screen display disappear.



To use the On Screen Display:

Press **OSD/DISPLAY**.



❶ **L and R Indicators (NV-FJ600PM only)**

❷ **Indicator for STEREO and SAP Reception (NV-FJ600PM only)**
When receiving a TV program, automatically indicates when a TV program is broadcast with the stereo and/or AUDIO II (SAP) sound system.

At the every push of **AUDIO OUT**, the audio output mode changes as follows. During playback:

→ Stereo → L → R → Normal audio track ←

While the broadcast signals are being received:

→ Stereo → L → R →

The Left (L) and Right (R) indicators show which sound mode is selected as follows on the On Screen Display.

Stereo:	Both the L and R indicators appear.
L:	The L indicator appears.
R:	The R indicator appears.
Normal:	Neither the L nor R indicator appears.

❸ **Program position**

④ **CVC (Crystal View Control)**

NORMAL: Using the CVC function, the pictures appear sharply defined during playback.
- The CVC indicator is lit on the VCR display.
- This control should normally be left in this position.

SHARP: The pictures appear more sharply defined during playback.
- The CVC indicator is lit on the VCR display.

OFF: Turn off the CVC function.
- The CVC indicator is not lit.

⑤ **Tape running display**

Stop, Eject	
Rewind, Review, Index Search ⏮, JET SEARCH ⊖	◀◀
Fast forward, Cue, Index Search ⏭, JET SEARCH ⊕	▶▶
Playback	▶
Recording	●
Recording pause	❚❚●
Repeat playback	R ▶

⑥ **Present time/Tape counter/Remaining tape time/Index search**

Information	Display
Present time	17:24
Tape counter	−2:35.47
Remaining tape time	REMAIN 2:34
Index search	S 01

Press **RESET** to reset the tape counter (elapsed time) to "0:00.00".
- The tape counter is automatically reset to "0:00.00" when a video cassette is inserted.

⑦ **Cassette-in indicator**

⑧ **Tape speed indicator**

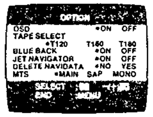
Notes:
- The on screen display may be disturbed depending on the playback tape or the input signal.
- The on screen display does not appear when the **OSD** is set to **OFF**. Set the **OSD** to **OFF** for dubbing.

To Select the Corresponding Video Cassette Tape Length to Display the Approximate Remaining Tape Time

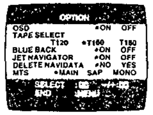
Follow steps **1** to **2** on page 19.

On Screen Display

3 Select **TAPE SELECT** by pressing ▲ or ▼.


OPTION
OSD •ON OFF
TAPE SELECT •T120 T160 T180
BLUE BACK •ON OFF
JET NAVIGATOR •ON OFF
DELETE NAVIDATA •NO YES
MTS •MAIN SAP MONO
SELECT
END :MENU

4 Select the corresponding video cassette tape length by pressing ◀ or ▶.


OPTION
OSD •ON OFF
TAPE SELECT T120 •T160 T180
BLUE BACK •ON OFF
JET NAVIGATOR •ON OFF
DELETE NAVIDATA •NO YES
MTS •MAIN SAP MONO
SELECT
END :MENU

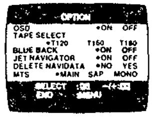
T120: For T30, -60, -90 and -120 tapes.
T160: For T140 and -160 tapes.
T180: For T180 tape.

5 Press **MENU** twice to make the on screen display disappear.

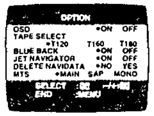
For the Blue Background Function

When **BLUE BACK** is **ON**, the screen will always have a blue background when no signal is received or the received signal is very weak.
Follow steps **1** to **2** on page 19.

3 Select **BLUE BACK** by pressing.▲ or ▼.


OPTION
OSD •ON OFF
TAPE SELECT •T120 T160 T180
BLUE BACK •ON OFF
JET NAVIGATOR •ON OFF
DELETE NAVIDATA •NO YES
MTS •MAIN SAP MONO
SELECT
END :MENU

4 Select **ON** or **OFF** by pressing ◀ or ▶.


OPTION
OSD •ON OFF
TAPE SELECT •T120 T160 T180
BLUE BACK •ON OFF
JET NAVIGATOR •ON OFF
DELETE NAVIDATA •NO YES
MTS •MAIN SAP MONO
SELECT
END :MENU

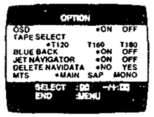
- When **BLUE BACK** is **OFF**, the blue background function is deactivated.
- It is not possible to record the blue picture of the blue background function.

5 Press **MENU** twice to make the on screen display disappear.

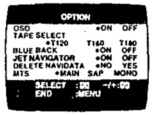
For the Jet Navigator Function

Follow steps **1** to **2** on page 19.

3 Select **JET NAVIGATOR** by pressing ▲ or ▼.


OPTION
OSD •ON OFF
TAPE SELECT •T120 T160 T180
BLUE BACK •ON OFF
JET NAVIGATOR •ON OFF
DELETE NAVIDATA •NO YES
MTS •MAIN SAP MONO
SELECT
END :MENU

4 Select **ON** or **OFF** by pressing ◀ or ▶.


OPTION
OSD •ON OFF
TAPE SELECT •T120 T160 T180
BLUE BACK •ON OFF
JET NAVIGATOR •ON OFF
DELETE NAVIDATA •NO YES
MTS •MAIN SAP MONO
SELECT
END :MENU

- When **JET NAVIGATOR** is **ON**, JN appears on the VCR display and Jet Navigator function works.

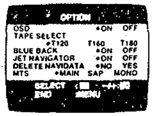
5 Press **MENU** twice to make the on screen display disappear.

- See pages 31–32 for details on the Jet Navigator function.

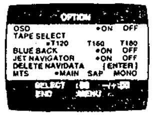
To Delete All the Jet Navigator Data Stored in the VCR's Memory

Follow steps **1** to **2** on page 19.

3 Select **DELETE NAVIDATA** by pressing ▲ or ▼.


OPTION
OSD •ON OFF
TAPE SELECT •T120 T160 T180
BLUE BACK •ON OFF
JET NAVIGATOR •ON OFF
DELETE NAVIDATA •NO YES
MTS •MAIN SAP MONO
SELECT
END :MENU

4 Select **YES** by pressing ◀ or ▶ then press **ENTER** when you want to delete all the Jet Navigator data.


OPTION
OSD •ON OFF
TAPE SELECT •T120 T160 T180
BLUE BACK •ON OFF
JET NAVIGATOR •ON OFF
DELETE NAVIDATA [ENTER]
MTS •MAIN SAP MONO
SELECT
END :MENU

5 Press **MENU** twice to make the on screen display disappear.

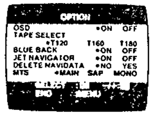
- See page 31 on the way to delete the Jet Navigator data of a single video cassette tape.

Audio Channel Selection (NV-FJ600PM only)

When a stereo and/or AUDIO II (SAP) broadcast is received, "STEREO" and/or "SAP" are lit to inform you of the type of broadcast. Follow steps **1** to **2** on page 19.

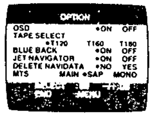
On Screen Display

3 Select **MTS** by pressing ▲ or ▼.



```
OPTION
OSD                       •ON    OFF
TAPE SELECT
          •T120     T160    T180
BLUE BACK                 •ON    OFF
JET NAVIGATOR             •ON    OFF
DELETE NAVIDATA           •NO    YES
MTS            •MAIN   SAP   MONO
```

4 Select the desired mode by pressing ◀ or ▶.



```
OPTION
OSD                       •ON    OFF
TAPE SELECT
          •T120     T160    T180
BLUE BACK                 •ON    OFF
JET NAVIGATOR             •ON    OFF
DELETE NAVIDATA           •NO    YES
MTS             MAIN  •SAP   MONO
```

The table below shows the TV broadcast type, **MTS** settings, and audio recording patterns.

Be sure that **MTS** is set to **MAIN** or **SAP** and follow the operation procedure described on page 25 to record on the Hi-Fi audio tracks.

TV Broadcast	MTS	AudioTrack		
		Normal (Mono)	Hi-Fi	
			Left	Right
Mono	**MAIN or SAP**	Mono	Mono	Mono
Stereo	**MAIN or SAP**	L+R (Mixed)	Left	Right
Mono and Audio II (SAP)	**MAIN**	Mono	Mono	Mono
	SAP	Mono	Mono	Audio II
Stereo and Audio II (SAP)	**MAIN**	L+R (Mixed)	Left	Right
	SAP	L+R (Mixed)	L+R (Mixed)	Audio II

MONO Position

If the sound of a stereo or Audio II (SAP) broadcast is impaired by noise due to weak reception, set **MTS** to **MONO**. The TV broadcast is recorded monaurally for easier listening.
To resume stereophenic recording, set **MTS** to **MAIN** or **SAP**.

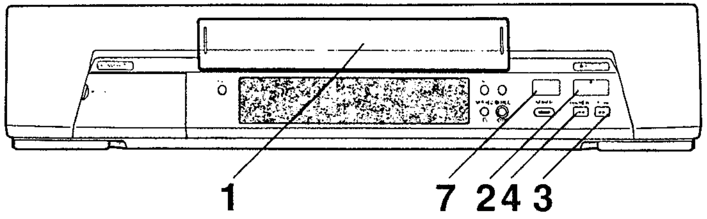
5 Press **MENU** twice to make On Screen Display disappear.

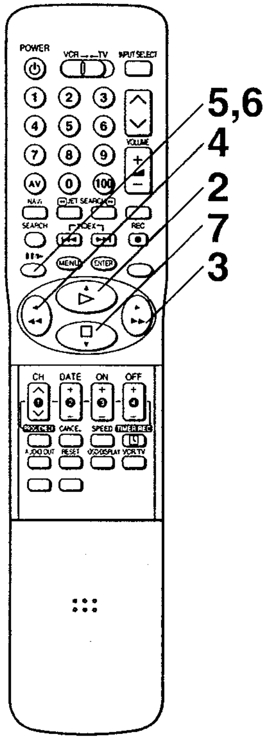
Auto Bilingual Choice Function (NV-FJ600PM only)

When a stereo broadcast or Audio II (SAP) broadcast is recorded and played back on this unit, stereo sound will be automatically selected in this case of a stereo broadcast and Audio II (SAP) sound will be automatically selected in the case of a dual-sound broadcast (Mono and Audio II or Stereo and Audio II).

- The wrong choice may be made if the program is played back from an interim point. (In a case like this , press the **AUDIO OUT** button and select the right sound.)
- This function works only for a cassette which has been recorded by a video recorder equipped with Panasonic's Auto Bilingual Choice function.
- The function will not work with a cassette which has been recorded using the external input facility.

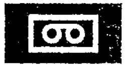
Playback



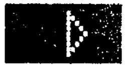


Operations **Display Symbols**

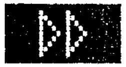
1 Insert a recorded video cassette tape.



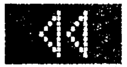
2 Start viewing the picture by pressing ▷ **(PLAY)**.



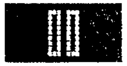
3 Search forward by tapping ▶▶ **(FF)**.
- •To change back to normal playback, press ▷ **(PLAY)**.



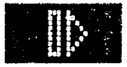
4 Search backward by tapping ◀◀ **(REW)**.
- •To change back to normal playback, press ▷ **(PLAY)**.



5 View a still picture by pressing **II/I▸ (PAUSE/SLOW)**.
- •To continue normal playback, press ▷ **(PLAY)** or **II/I▸ (PAUSE/SLOW)**.



6 View a slow motion picture.
- •Keep **II/I▸ (PAUSE/SLOW)** pressed for 2 seconds or more.
- •To continue normal playback, press ▷ **(PLAY)**.



7 Stop viewing the picture by pressing ☐ **(STOP)**.

Note:
If you keep ▶▶ **(FF)** or ◀◀ **(REW)** pressed in step **3** or **4**, search playback is activated while the button is pressed, and operation returns to normal playback when the button is released.

To Obtain a Higher Speed Picture than Cue, Review (Jet Search)

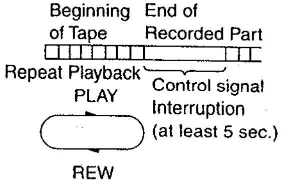
Press **JET SEARCH** (►►) to search forward during playback.
Press **JET SEARCH** (◄◄) to search backward during playback.

- It is possible to view the picture recorded in the EP (SP) mode at approx. 27 (9) or 35 (11) times speed. However, it can return to approx. 27 (9) times speed by pressing (◄◄) **JET SEARCH** (►►) again.
- Initially it is set to approx. 27 (9) times speed.
- The picture that appears at approx. 35 (11) times speed may be disturbed. However it is not a malfunction but a vertical scroll due to combination with the TV monitor.
  If it happens, change to approx. 27 (9) times speed.
- Jet Search function also works during fast forward or rewind.
- The picture may not be in color for a few seconds depending on TV when Jet Search begins or returns to playback.

Other Playback Functions

To Play back the Recorded Part Repeatedly

Keep ▷ **(PLAY)** pressed for 5 seconds or more.
The "R ►" display appears on the TV screen.


Beginning of Tape
End of Recorded Part
Repeat Playback
PLAY
Control signal Interruption (at least 5 sec.)
REW

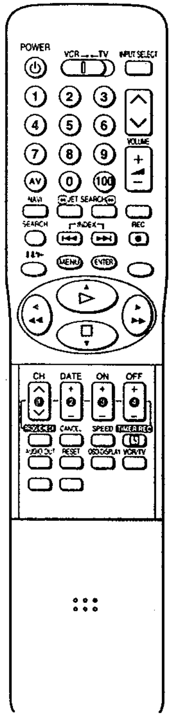
- Press □ **(STOP)** to release the VCR from the Repeat Playback mode.

To Eject the Video Cassette Using the Remote Controller

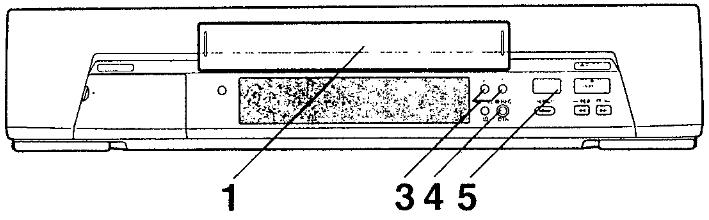
Keep pressing □ **(STOP)** for at least 3 seconds.

Notes:

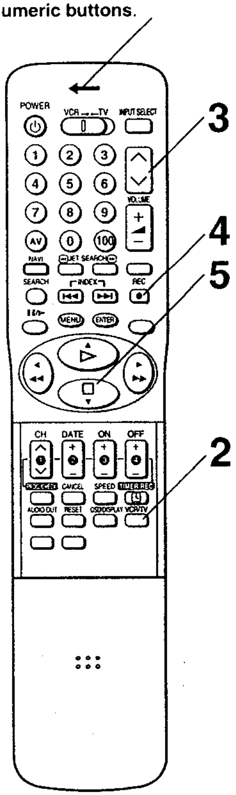
- Jet Search, cue, review or slow playback will be automatically released after 10 minutes, and still playback, after 5 minutes.
- In the EP mode only:
  When playing back a tape which was recorded on another VCR, it may be necessary to adjust tracking control using the ∨ and ∧ buttons. (See page 35.) In some cases the picture quality may still be inferior. This is due to format constraints.

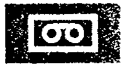
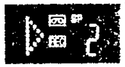

POWER
VCR→TV
INPUT SELECT
VOLUME
NAVI
JET SEARCH
SEARCH
INDEX
REC
MENU
ENTER
CH
DATE
ON
OFF
CANCEL
SPEED
TIMER REC
AUDIO OUT
RESET
OSD/DISPLAY
VCR/TV

Manual Recording



Set **VCR/TV** switch to **VCR** for using **POWER** ⏻, the ∨ and ∧ buttons and the **numeric buttons**.


3
4
5
2
POWER
VCR→TV
INPUT SELECT
VOLUME
NAVI
JET SEARCH
SEARCH
INDEX
REC
MENU
ENTER
CH
DATE
ON
OFF
CANCEL
SPEED
TIMER REC
AUDIO OUT
RESET
OSD/DISPLAY
VCR/TV

Operations	Display Symbols
1 Insert a video cassette tape with an intact erasure prevention tab. ●If it has already been inserted, press **POWER ⏻/I (POWER ⏻)** to turn the VCR on.	
2 Press **VCR/TV** to select the VCR mode.	
3 Press the ∨ and ∧ buttons to select the TV station. ●It is also possible to select by pressing **numeric buttons**. ●Ensure that **VCR/TV** switch is set to **VCR**.	
4 Press **REC** ● to start recording.	
5 Press □ **(STOP)** to stop recording.	

To Select the Desired Tape Speed

Press **SPEED** before recording.

Display Symbol

To Interrupt Recording

Press **❚❚/❚▸ (PAUSE/SLOW)** during recording.
Press again to continue recording.

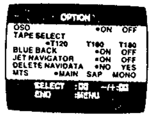
To View One TV Program while Recording Another One

1 Refer to steps **1–4** of the manual recording operation.
2 Press **VCR/TV** to select the TV mode.
3 Select the TV program on your TV that you wish to view now.
- Ensure that **VCR/TV** switch is set to **TV**.

To Display the Approximate Remaining Tape Time

1 Select **TAPE SELECT** from the on screen display and select the corresponding video cassette tape length. See page 20.

On Screen Display



```
OSD                       •ON    OFF
TAPE SELECT
            •T120   T160   T180
BLUE BACK                 •ON    OFF
JET NAVIGATOR             •ON    OFF
DELETE NAVIDATA           •NO    YES
MTS          •MAIN   SAP   MONO
```

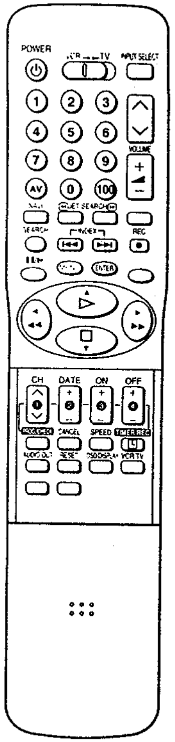
T120: For T30, -60, -90 and -120 tapes.
T160: For T140 and -160 tapes.
T180: For T180 tape.

2 Press **OSD/DISPLAY**.

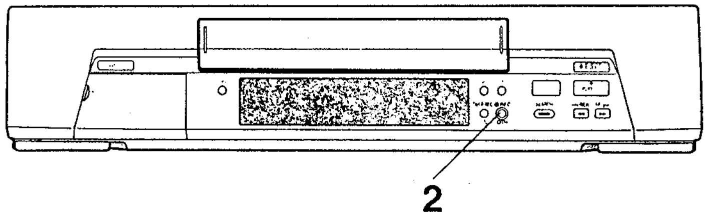
The display changes as follows each time **OSD/DISPLAY** is pressed.

→ Clock → Counter → Remaining Tape Time

- The remaining tape time may not be displayed correctly depending on the tape used.



Notes:
- When a video cassette with a broken off erasure prevention tab is inserted, the "OTR" indication will flash to indicate that recording is not possible even if **REC ● (● REC/OTR)** is pressed.
- The recording pause mode will be automatically released after 5 minutes, and the VCR will return to the stop mode.



One-Touch Recording (OTR)

Whenever you are in a hurry to start a timer recording with automatic stop in your absence, simply set the recording duration by pressing **● REC/OTR** repeatedly.
The duration indicated on the VCR display changes by pressing **● REC/OTR** as follows:

→ Counter display (normal recording mode) → 30 (min.) → 60 (min.)
240 (min.) ← 180 (min.) ← 120 (min.) ←

Preparation
Insert a video cassette with an intact erasure prevention tab.

Operations
1 Ready the video source which is to be recorded, and start recording.

2 Press **● REC/OTR on the VCR main unit** repeatedly to select the desired recording duration.
- The VCR will automatically switch off when OTR is completed. To turn the VCR on again, press **POWER ⏻/I**.

Notes:
- The OTR function works during normal recording.
- When the tape reaches its end during OTR, the VCR will turn itself off.
- To stop OTR at any time, press **STOP ■** or **POWER ⏻/I**.

Timer Recording

4-Key Programming

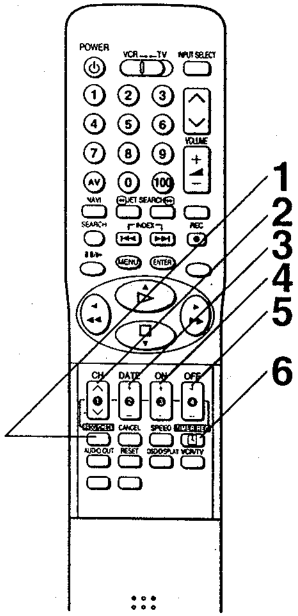
Up to 8 timer programs, including weekly and daily programs, can be recorded up to one month in advance by setting the timer.

Preparations

- Insert a video cassette tape with an intact erasure prevention tab.
- Confirm that the TV is on and the VCR viewing channel is selected.
- Turn on the VCR.
- Check that the clock is set to the correct time. If it has not been set, refer to page 18.
- Press **VCR/TV** to select the VCR mode.

Example:

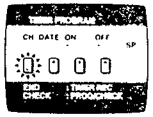
Program position (channel);	2
Date;	27 October
Starting time;	20:02
Ending time;	21:30
(Present date; 16 October)	



POWER
VCR — TV
INPUT SELECT
VOLUME
1
2
3
4
5
6
CH
DATE
ON
OFF
CANCEL
SPEED
TIMER REC

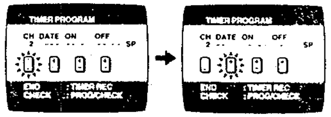
Operations **On Screen Display**

1 Press the **PROG./ CHECK** button.



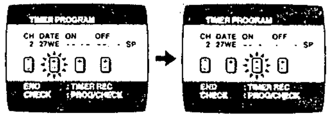
TIMER PROGRAM
CH DATE ON OFF SP
END CHECK : TIMER REC : PROG/CHECK

2 Set **Program position** (channel) to "2".

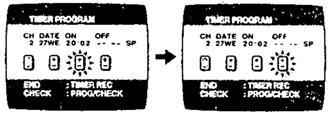


- The next item will flash after about 2 seconds.

3 Set **Date** to "27WE".

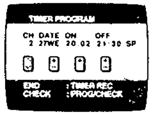


4 Set **Starting time** to "20:02".



- When kept pressed, the indication changes in 30-minute steps.

5 Set **Ending time** to "21:30".



TIMER PROGRAM
CH DATE ON OFF
2 27WE 20 02 21 30 SP
END CHECK : TIMER REC : PROG/CHECK

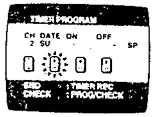
6 To activate timer recording, press **TIMER REC** ⊡.

- When **JET NAVIGATOR** is set to **ON**, the [PROGRAM IS COMPLETED REMAINING PROGRAM " "] message appears. (See page 21.)
- When **JET NAVIGATOR** is set to **OFF**, the [PROGRAM IS COMPLETED] message appears. (See page 21.)
- The VCR will be set to the timer recording standby mode after about 1 minute if **TIMER REC** ⊡ is not pressed.

Weekly Timer Recording

In step **3**, select the desired day by pressing **DATE –**.
For example, SU (Sunday)

On Screen Display

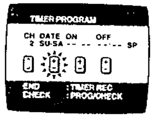


TIMER PROGRAM
CH DATE ON OFF
2 SU SP
END CHECK : TIMER REC : PROG/CHECK

(SU=Sunday, MO=Monday, TU=Tuesday, WE=Wednesday, TH=Thursday, FR=Friday, SA=Saturday)

Daily Timer Recording

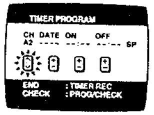
For this timer function, several groups of days can be selected.
Ⓐ Daily recording from Monday to Friday (MO–FR)
Ⓑ Daily recording from Monday to Saturday (MO–SA)
Ⓒ Daily recording from Sunday to Saturday (SU–SA)
In step **3**, select the desired days by pressing **DATE –**.
For example, Ⓒ



TIMER PROGRAM
CH DATE ON OFF
2 SU-SA SP
END CHECK : TIMER REC : PROG/CHECK

Timer Recording from an External Signal Source

If timer recording is performed by a unit connected to the audio/video input sockets, select the A1 or A2 indicator in step **2** for the program position.



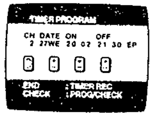
TIMER PROGRAM
CH DATE ON OFF
A2 SP
END CHECK : TIMER REC : PROG/CHECK

Setting other Programs in Succession

Repeat steps **1–6**.

Selecting the Desired Tape Speed

Press **SPEED** to make the selection in any of steps **1–5**.

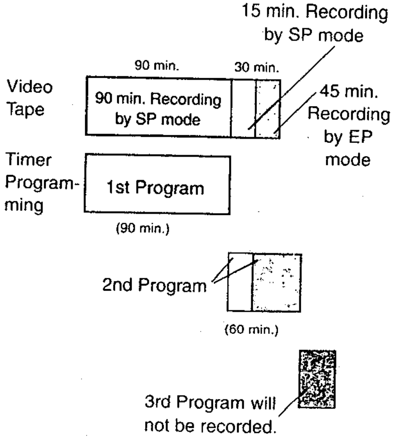


TIMER PROGRAM
CH DATE ON OFF
2 27WE 20 02 21 30 EP
END CHECK : TIMER REC : PROG/CHECK

Programming a Timer Recording of a TV Program Until its End (Auto SP/EP Change Function)

If, during a timer recording performed in the SP mode, the VCR determines that the remaining tape time is insufficient to record the program to its end, the Auto SP/EP Change function automatically changes the tape speed to EP to ensure that the whole program will be recorded. Depending on the remaining tape length, recording may be performed in the EP mode from the start. However, if the remaining tape time is still not sufficient in this case, the program cannot be recorded to the end.

Example for T120 tape:

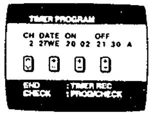


15 min. Recording by SP mode
90 min.
30 min.
Video Tape
90 min. Recording by SP mode
45 min. Recording by EP mode
Timer Program-ming
1st Program
(90 min.)
2nd Program
(60 min.)
3rd Program will not be recorded.

- The tape length must be set correctly. (See page 20.)
- Tapes except T30, -60, -90, -120, -140, -160, -180 tapes may not work correctly.

To Activate the Auto SP/EP Change Function:
Press **SPEED** to select "A".

On Screen Display



- Every time you press **SPEED**, the indication changes in the following order:

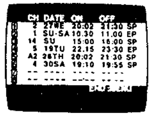
→SP→EP→A

Checking a Timer Program

- The VCR must be turned on, or the timer recording indicator "⌚" lit.
- Confirm that the TV is on and the VCR viewing channel is selected.

1 Press **PROG./CHECK** twice.

2 Press **VCR/TV** to select the VCR mode.

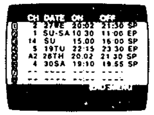


Cancelling a Timer Program

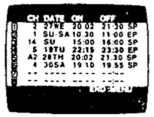
- The VCR must be turned on, or in timer recording standby mode.
- Confirm that the TV is on and the VCR viewing channel is selected.

1 Press **PROG./CHECK** twice.

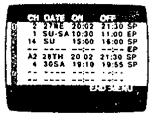
2 Press **VCR/TV** to select the VCR mode.



3 Press **PROG./CHECK** repeatedly.



4 Press **CANCEL**.

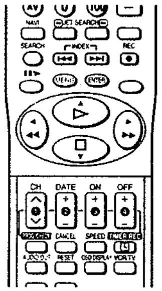


Note:
If timer recording is not completed (due to insufficient tape or cancellation by the user), the programmed timer recording data will be cancelled from the memory by
4 A.M. two days later.
However, if the timer recording function is activated at that time, the programmed timer recording data will not be cancelled.

Search Functions

To Search for a Timer-Recorded Program from the List (Jet Navigator)

This VCR can display a list of the timer-recorded programs on the inserted video cassette on the TV screen. You can then select the desired program, and the VCR will quickly locate its beginning and start playback.



Conditions for correct operation of the Jet Navigator function:

- The tape length of the inserted cassette must be set correctly.
- The VCR must not be in the timer recording standby mode.
- A program of at least 15 minutes must be recorded on the tape.

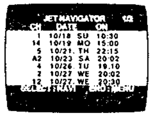
Preparations

- Display the VCR picture on the TV.
- Be sure to set **JET NAVIGATOR** to **ON** (See page 21.) and preform timer recording.
- Press **VCR/TV** to select the VCR mode.

Operations

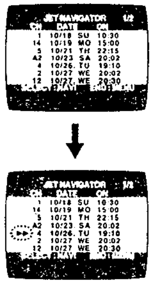
1 Press **NAVI** to display the Jet Navigator list.
- Up to 14 program data that have been timer-recorded last are displayed on the Jet Navigator list. (7 program data for each page)

On Screen Display



- When more than 15 programs have been timer-recorded for one cassette, the program data are deleted from the first one.
- When pressing **NAVI** during playback, playback stops and the Jet Navigator list appears.

2 Press **NAVI** several times to select the program that you want to locate and play back.
After more than 3 seconds, the VCR starts the search for the beginning of the selected program and playback starts automatically.
- Every time you press **NAVI**, the program shifts above.
- If, after playback has started, you want to search for the beginning of the same or another program, press **NAVI**. Playback stops and the Jet Navigator list appears.



To cancel the Jet Navigator list:
Press **MENU**.

To delete the Jet Navigator Data of a single video cassette tape
Keep **CANCEL** pressed for more than 5 seconds while the Jet Navigator list appears.
"– –" appears on the list.

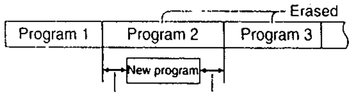
- See page 21 on the way to delete all the Jet Navigator data stored in the VCR's memory.

Notes:

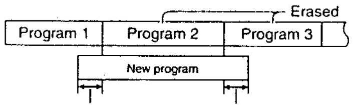
- The Jet Navigator list is stored in each cassette.
- Signals approximately 10 seconds before and after the current tape position are checked. (During this checking, "CHECKING JET NAVIGATOR DATA" is displayed on the TV screen.)

- Checking cannot be performed properly when signals are attempted to be checked at portions of the tape where there are no signals such as at unrecorded portions of the tape. In this case, press **NAVI** at a portion of the tape where a program has been recorded using the timer recording function of this VCR. This will allow signal checking to be performed more reliably. When a signal can still not be found, "CAN NOT FIND JET NAVIGATOR DATA" is displayed on the TV and you cannot find the beginning of the program.
- Up to 20 cassettes and 50 programs can be registered.
- When a new program is attempted to be recorded using the timer recording function when programs equivalent to 20 cassettes are already stored in memory, "REMAINING CASSETTE " 0" DELETE JET NAVIGATOR DATA" is displayed following completion of the timer recording procedure. Programs recorded using the timer recording function without deleting data as instructed are not registered in the list.
- When a new program is attempted to be recorded using the timer recording function when 50 programs are already stored in memory, "REMAINING PROGRAM " 0" DELETE JET NAVIGATOR DATA" is displayed following completion of the timer recording procedure. Programs recorded using the timer recording function without deleting data as instructed are not registered in the list.

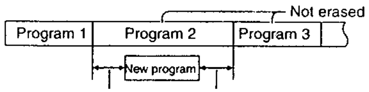
When Recording Using Timer Recording Function Over the Same Location on a Tape
- The originally recorded program is deleted from the list.
- Program contents starting near the start and end of the newly recorded program (within 10 minutes before the start and after the end of the newly recorded program in the EP mode) are also erased. (Although old program contents are also similarly erased in the case of ordinary recording, the newly recorded program is not registered in the list.)



Within 10 minutes in the EP mode



Within 10 minutes in the EP mode



10 minutes or more in the EP mode

To Demonstrate the Jet Navigator Function

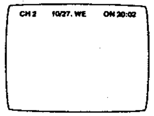
Keep **NAVI** pressed for more than 5 seconds without inserting a cassette tape.

To Check the Timer Programming Data (Time Stamp Function)

When playback starts after searching with Jet Navigator function or index search function, timer programming data (called Time Stamp) appears on the TV screen for approx. 5 seconds.

Preparations
- Display the VCR picture on the TV.
- Be sure to set **OSD** to **ON**. (See page 19.)
- Press **VCR/TV** to select the VCR mode.

On Screen Display

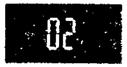


Note:
Time Stamp does not appear if the beginning of the Jet Navigator data are not recorded 10 minutes before and after the current tape position in the EP mode even when index signals are recorded.

To Find the Beginning of Each Recording (VHS Index Search System)

Example:
Searching for the 2nd recorded segment in the forward direction.
Press **INDEX ▶▶I** twice.
(This operation is performed while the VCR is in the stop mode or normal playback mode.)

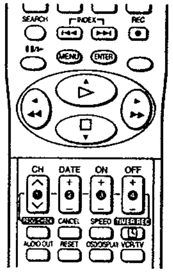
Display Symbol



- After finding the specific recorded segment, playback starts automatically.
- If you press **INDEX ▶▶I** too many times, simply press **INDEX I◀◀** to correct it. In this way, you can reduce the displayed figure down to 1.
- Up to 20 index signals can be searched for in both directions.
- The figure on the display decreases by 1 each time an index signal is located.

Recording Index Signals
Index signals are recorded in the following cases.
- When a recording is started by pressing **REC ● (● REC/OTR)**.
- When **REC ●** on the remote controller is pressed during recording.
- When timer recording is activated.

Note:
The index search function can only work correctly if the index signals are spaced at least 3 minutes apart in the SP mode and 5 minutes apart in the EP mode.



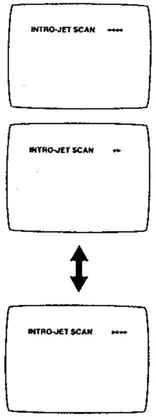
Searching while checking the video cassette contents (Intro-Jet Scan)

The approximate beginnings of each recorded program are played in succession at the high speed so that the program to be viewed can be located easily.

Preparations
- Confirm that the TV is on and the VCR viewing channel is selected.
- Press **VCR/TV** to select the VCR mode.
- Load the pre-recorded video cassette.

1 Press **SEARCH**.
  (This operation is performed while the VCR is off or while the VCR is in the stop mode or normal playback mode with the VCR on.)
  - The tape is rewound to the beginning, and played for about 10 seconds at the high speed. It is then fast forwarded, the VISS (VHS Index Search System) signals are searched in succession, and each time the signals are found, the tape is played for about 10 seconds at the high speed.

On Screen Display



2 When the program to be viewed is reached, press ▷ **(PLAY)**.
  - Normal playback now commences.

To stop the operation at any time:
Press □ **(STOP)**.

Note:
This function may not work properly when recorded programs run for 15 minutes or less.

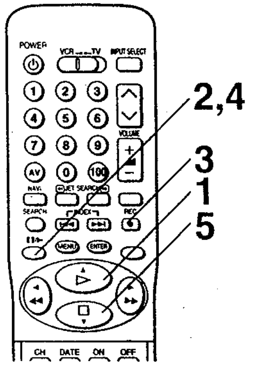
Editing

Assembly Editing

This function can be used to make up an edited tape from other recordings or video sources. A new scene can be added to the end of previous one.

Preparations

- Connect a movie camera or another VCR to this VCR as shown.
- Insert a recorded cassette tape with an intact erasure prevention tab.
- Select the audio source required by pressing **INPUT SELECT** to set A1 or A2.



Operations

1 Search for the end of the previous recording by pressing ▷ **(PLAY)**.

2 Press **II/I▸ (PAUSE/SLOW)**.

3 Press **REC ●** to switch the VCR from the pause mode to the recording standby mode.

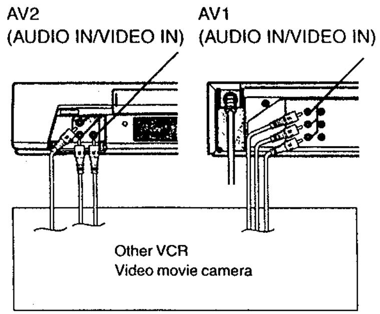
4 Start the new recording by pressing **II/I▸ (PAUSE/SLOW)** again.

5 Press □ **(STOP)** to stop recording.

Note:
The new sound will be recorded on both the normal and Hi-Fi sound tracks, only monaural sound recording is possible on the normal sound tracks. (NV-FJ600PM only)

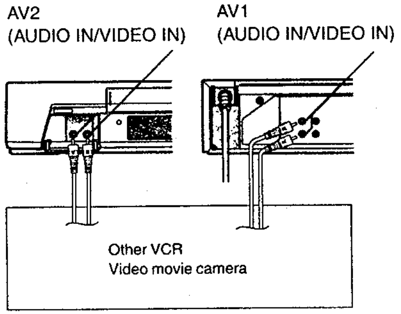
NV-FJ600PM

Recording VCR

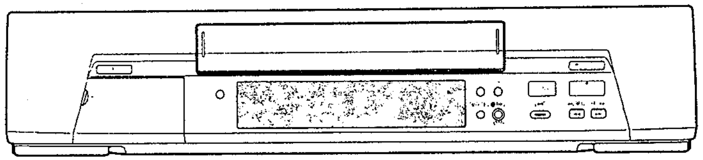


NV-SJ400PMP

Recording VCR



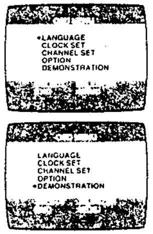
Other Functions



To Demonstrate the OSD menu

1 Press **MENU**.

2 Select **DEMONSTRATION** by pressing ▲ or ▼ and then press **ENTER**.



- During the demonstration mode, all the on screen displays are displayed one after the other at about five second intervals.

3 Press **MENU** to stop the demonstration.

Tracking Adjustment and Vertical Locking Adjustment

- For manual tracking adjustment
  The ∨ and ∧ buttons are used to adjust the tracking when, for example, noise bars on the picture during normal playback are better removed manually than by automatic digital tracking control. To return to automatic digital tracking control, press both buttons together.
- For slow tracking adjustment
  When noise bars appear during still or slow playback, switch over to slow playback and adjust with the ∨ or ∧ button to reduce the noise bars.
- For vertical locking adjustment
  Use the ∨ and ∧ buttons to minimize any vertical jitter during still picture playback.

Set **VCR/TV** switch to **VCR** for using the ∨ and ∧ buttons of remote controller.

Other Automatic Functions

Automatic Playback

When, a video cassette without an erasure prevention tab is inserted, the VCR starts playback automatically.

VCR-off Playback

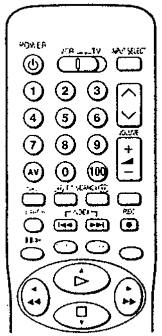
When the VCR is off, an inserted video cassette can be played back by pressing **PLAY** ▷.

Automatic Rewinding

When the tape reaches its end during recording (except for timer recording) or playback, it will automatically be rewound to the beginning. During OTR, this function will not work.

Automatic Switching Off and Ejection

When the VCR is switched off, an inserted video cassette can be ejected by simply pressing ≜ **EJECT**. The VCR will eject the video cassette and automatically turn itself off again.



SECTION 2
ADJUSTMENT PROCEDURES

2-1. DISASSEMBLY METHOD

2-1-1. DISASSEMBLY FLOW CHART

This flow chart indicates disassembly steps of the cabinet parts and the circuit boards in order to find the necessary items for servicing.
When reassembling, perform the steps in the reverse order.

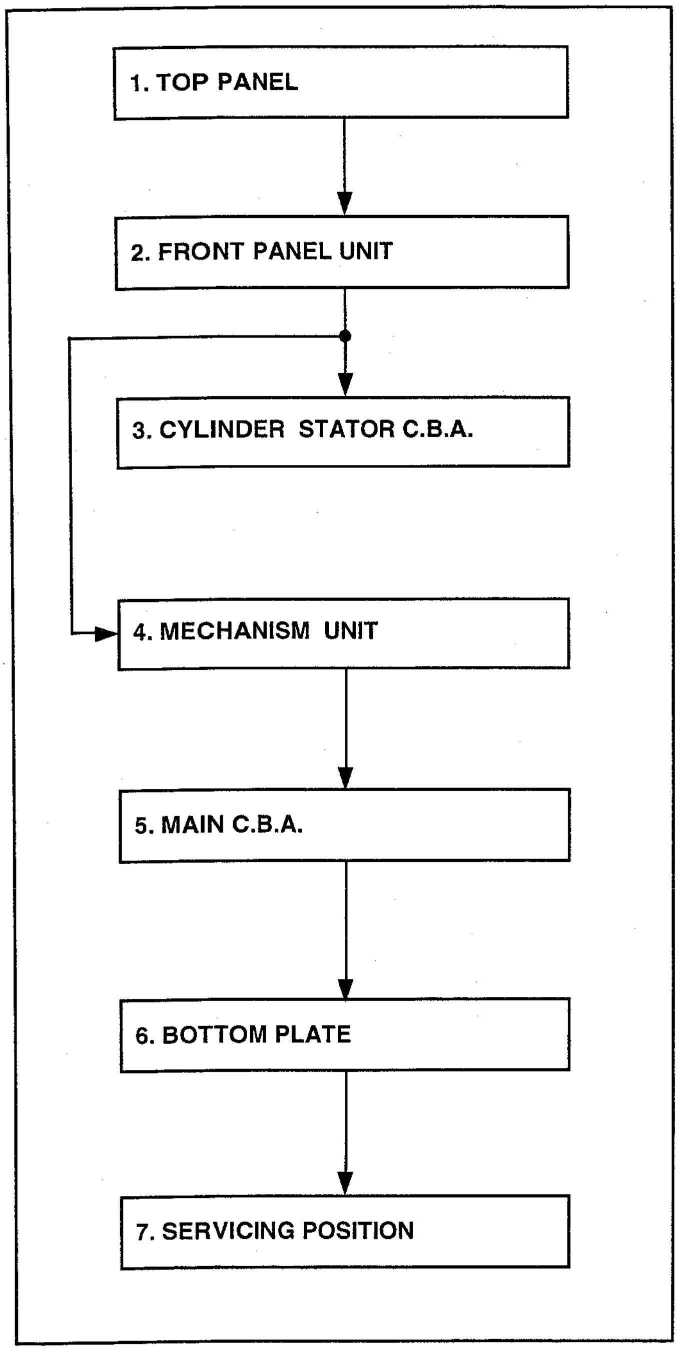

1. TOP PANEL
2. FRONT PANEL UNIT
3. CYLINDER STATOR C.B.A.
4. MECHANISM UNIT
5. MAIN C.B.A.
6. BOTTOM PLATE
7. SERVICING POSITION

Fig. D1

2-1-2. DETAIL OF DISASSEMBLY METHOD

1. REMOVAL OF THE TOP PANEL

Remove .... 2 Screws (A)

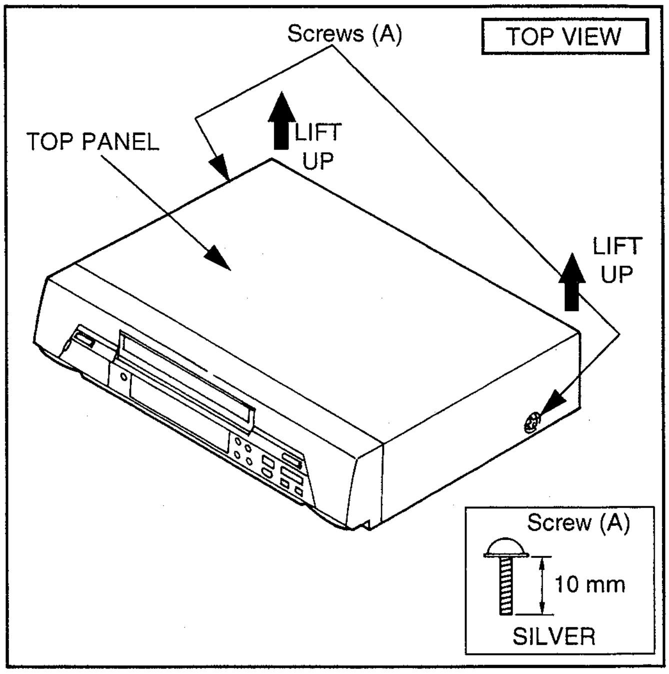

Screws (A)
TOP VIEW
TOP PANEL
LIFT UP
LIFT UP
Screw (A)
10 mm
SILVER

Fig. D2

2. REMOVAL OF THE FRONT PANEL UNIT

Unlock .... 7 Tabs (B)

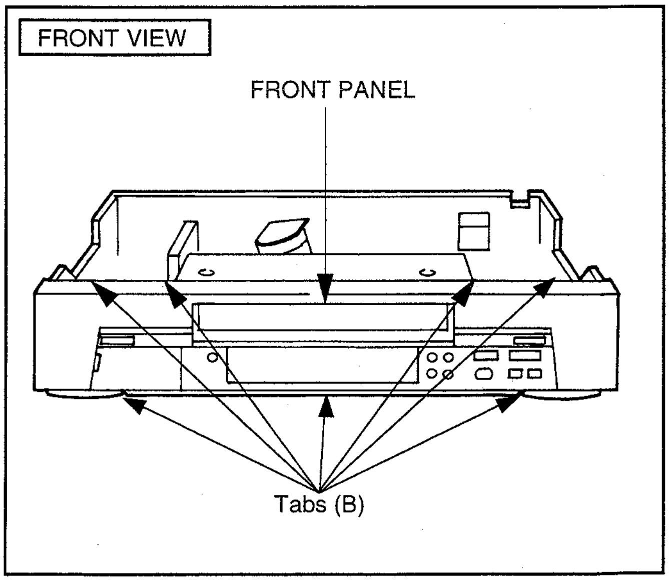

FRONT VIEW
FRONT PANEL
Tabs (B)

Fig. D3

3. REMOVAL OF THE CYLINDER STATOR C.B.A.

Remove .... 2 Screws (C)
Disconnect .... Flat Card Cable (D)

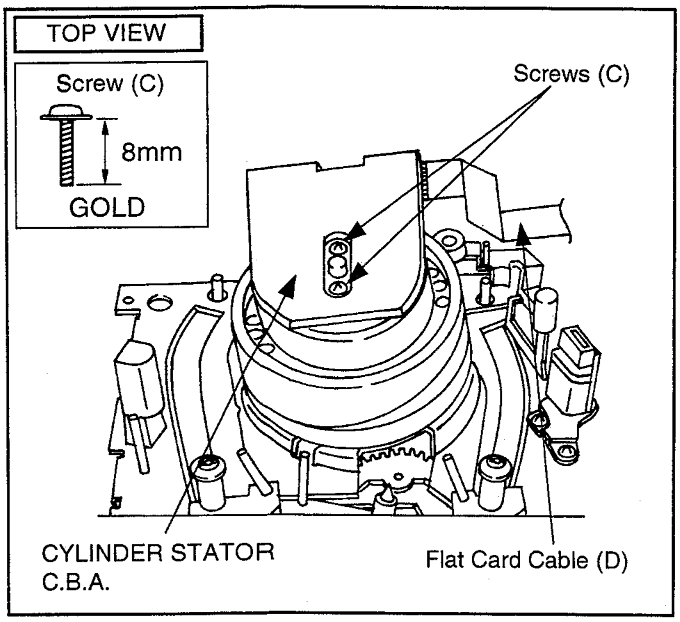

TOP VIEW
Screw (C)
8mm
GOLD
Screws (C)
CYLINDER STATOR C.B.A.
Flat Card Cable (D)

Fig. D4

4. REMOVAL OF THE MECHANISM UNIT

Remove .... 3 Screws (E)
2 Screws (F)
Screw (G)

NOTE: Keep pressing 2 stoppers on the Cassette Holder Plate and press the Cassette Holder Plate to the rear.

[CAUTION -Mounting the Mechanism unit to Main C.B.A.]

1. **When assembling, insert the Cylinder Flexible card to the Connector (P5001) carefully, to avoid any damage.**
2. **Be sure to tighten the Screw (G), otherwise, S/N ratio may become worse.**

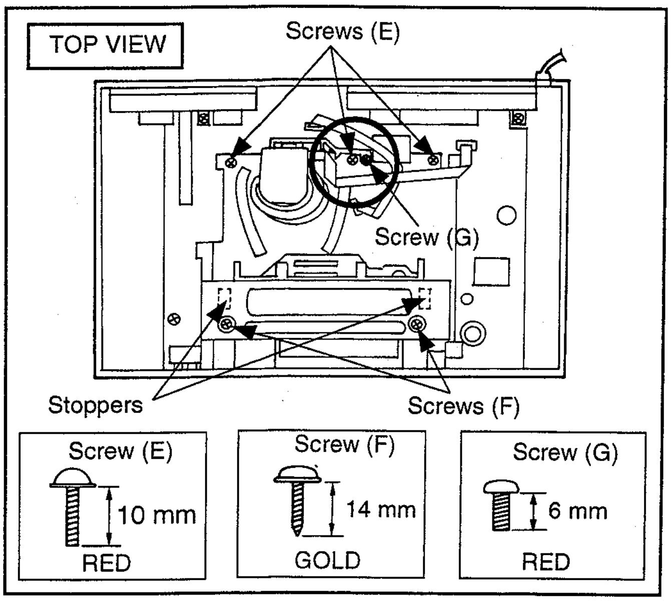

TOP VIEW
Screws (E)
Screw (G)
Stoppers
Screws (F)
Screw (E)
10 mm
RED
Screw (F)
14 mm
GOLD
Screw (G)
6 mm
RED

Fig. D5-1

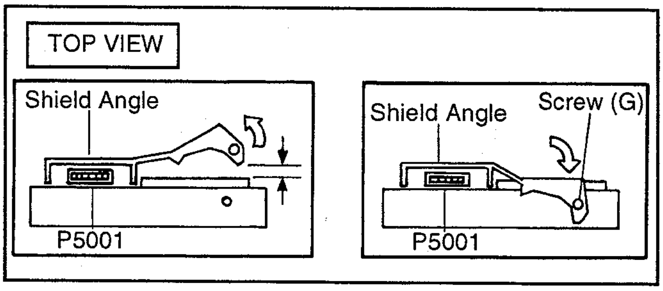

TOP VIEW
Shield Angle
P5001
Shield Angle
Screw (G)
P5001

Fig. D5-2

5. REMOVAL OF THE MAIN C.B.A.

Disconnect .... Connector (H)
Remove .... AC Cord Fixture (I)
4 Screws (J)
Unlock .... 2 Tabs (K)
4 Tabs (L)

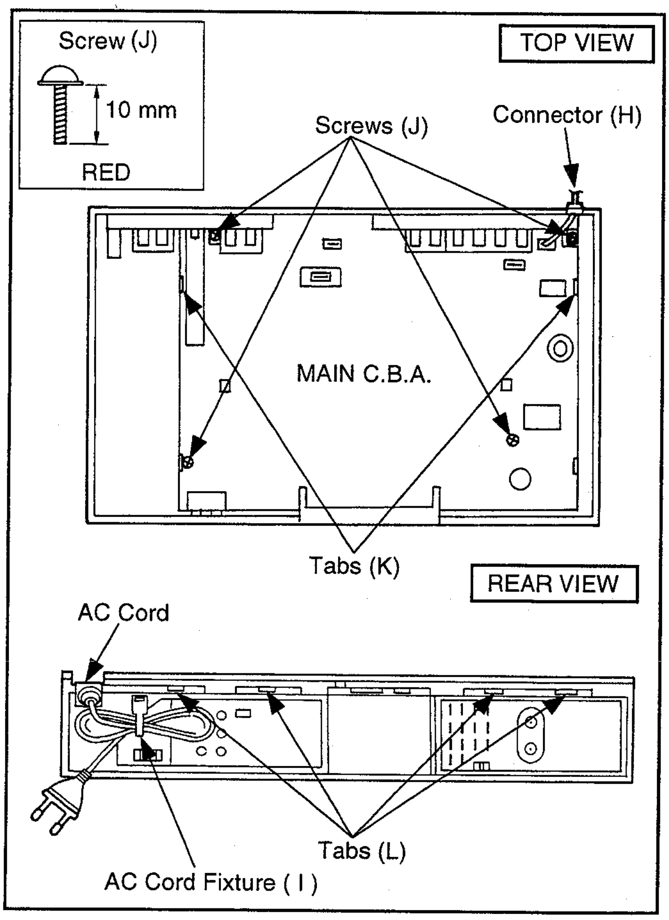

Screw (J)
10 mm
RED
TOP VIEW
Screws (J)
Connector (H)
MAIN C.B.A.
Tabs (K)
REAR VIEW
AC Cord
Tabs (L)
AC Cord Fixture (I)

Fig. D6

6. REMOVAL OF THE BOTTOM PLATE

Unlock............12 Tabs (M)

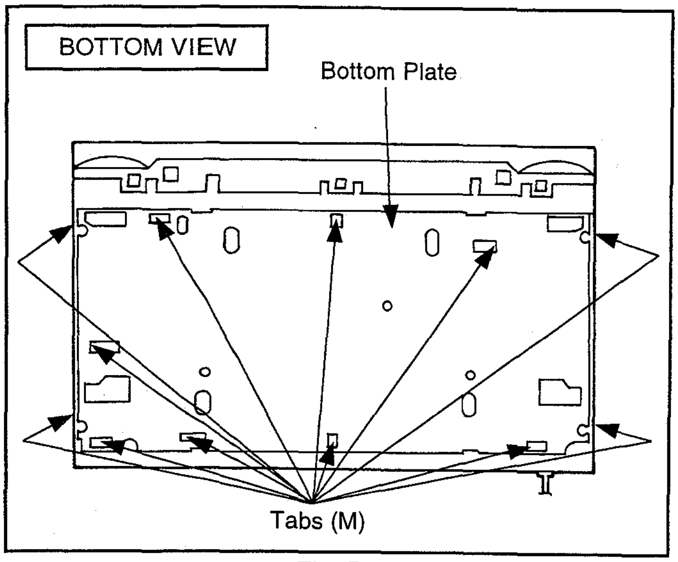

BOTTOM VIEW
Bottom Plate
Tabs (M)

Fig. D7

7. SERVICING POSITION

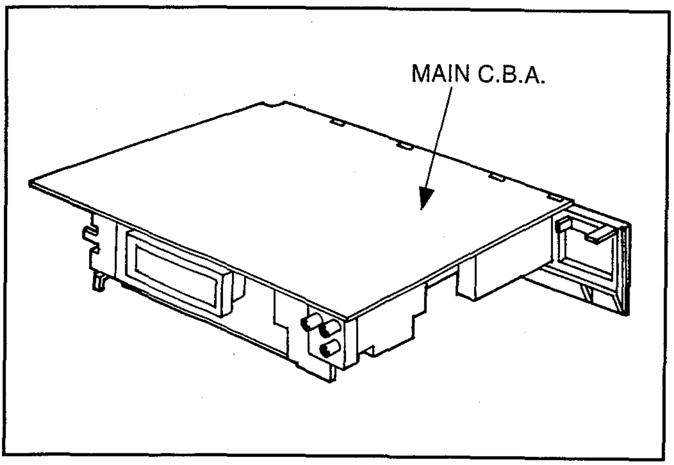


Fig. D8

2-2. MECHANICAL ADJUSTMENT PROCEDURES

Refer to the Z-Mechanism Service Manual
(Order No.:VRD9802005C2).

2-3. ELECTRICAL ADJUSTMENT PROCEDURES

This section provides complete adjustment procedures required for electric circuits of VCR.

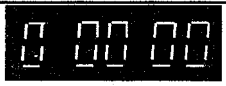
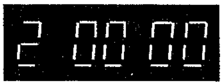
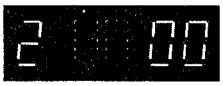
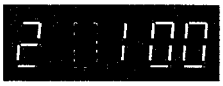
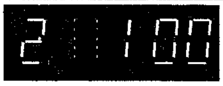
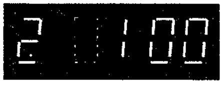
2-3-1. TEST EQUIPMENT

To perform electrical adjustments following equipment is required.

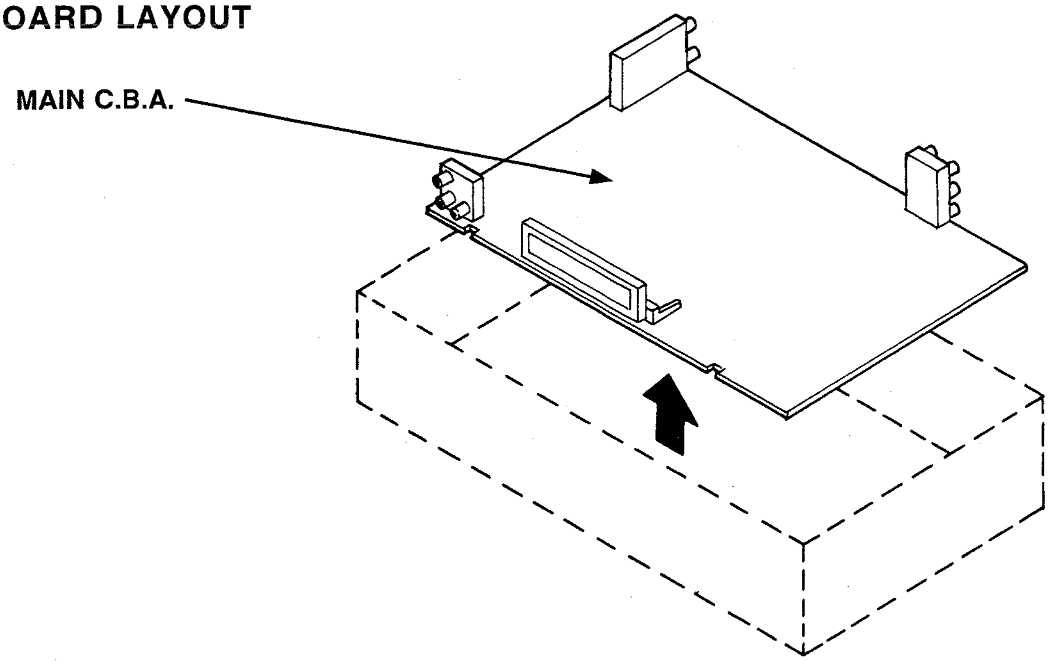
1. VHS Alignment Tape. (VFM8080HQFP)
2. Monitor

SERVO SECTION

2-3-2. PG SHIFTER ADJUSTMENT

PROCEDURES	DISPLAY
1. To set Service Mode, press the FF and EJECT buttons simultaneously for more than 3 seconds.	
2. To set Service Mode 2, press FF and EJECT buttons simultaneously three times.	
3. Press EJECT button for more than three seconds. Digit of minute is put out light.	
4. Indicate 1 in the digit of minute by pressing the channel up/down buttons. (When the channel up button is pressed, 1 will be indicated in the digit of minute.)	
5. Insert VHS Alignment Tape (VFM8080HQFP).	
6. This adjustment is automatically started after VCR goes PLAY mode. (During the adjustment, the picture can be observed on the monitor.)	
7. When this adjustment is terminated, the following operation will be activated. Adjustment completed : The tape will be ejected. Adjustment incompleted : Indicates " F2∗ " Check the Servo/System Control circuit and Cylinder unit.	
8. To release Service Mode 2, press FF and EJECT buttons simultaneously six times.	

CIRCUIT BOARD LAYOUT



SECTION 3
BLOCK DIAGRAMS & SCHEMATIC DIAGRAMS

3-1. ABBREVIATIONS & INPUT/OUTPUT CHART FOR IC6001

443NT [L]	4.43 NTSCⓁ
A. COMP	AUDIO COMPONENT SIGNAL
A. COMPO	AUDIO COMPONENT SIGNAL
A. D.P [L]	AUDIO DUBBING PAUSEⓁ
A. D/L [L]	AUDIO DUBBING PAUSEⓁ
A. DEF [S]	AUDIO DEFEAT
A.DEF [S] [L]	AUDIO DEFEAT
A. DUB P [L]	AUDIO DUBBING PAUSEⓁ
A. DUB [H]	AUDIO DUBBINGⒽ
A. ERASE	AUDIO ERASE
A. H. SW	AUDIO HEAD SWITCHING PULSE
A. HEAD [R]	AUDIO HEAD (REC)
A. HEAD [W]	AUDIO HEAD (PLAY)
A. IN [L]	AUDIO INPUT (L)
A. IN [R]	AUDIO INPUT (R)
A. MUT [H]	AUDIO MUTE Ⓗ
A. MUTE [H]	AUDIO MUTE Ⓗ
A. OUT [L]	AUDIO OUTPUT (L)
A. OUT [R]	AUDIO OUTPUT (R)
A. RF OUT	AUDIO RF SIGNAL OUTPUT
A/VS/S. DATA	AV SW/SERIAL DATA
AC ONLINE	AC ONLINE
AC. O/EE. H	AC ONLINE/EEⒽ
AFC S C	AFC S CURVE
AFC [S]	AFC S CURVE
AFC. DEF	AFC DEFEAT
ARFC OUT	AUDIO RF SIGNAL OUTPUT
ART. V	ARTIFICIAL VERTICAL SYNC SIGNAL
ART. V. MM	ARTIFICIAL VERTICAL SYNC SIGNAL MONO MULTI
ART. V/H/N	ARTIFICIAL VERTICAL SYNC SIGNAL Ⓗ/ NORMAL
AT. V/H/N	ARTIFICIAL VERTICAL SYNC SIGNAL
ATSW/TEST/NOR/SE	TEST/NORMAL/SERVICE
AUDIO IN [L]	AUDIO INPUT (L)
AUDIO IN [R]	AUDIO INPUT (R)
AUDIO OUT [L]	AUDIO OUTPUT (L)
AUDIO OUT [R]	AUDIO OUTPUT (R)
AUDIO SELECT [H]	AUDIO SELECTⒽ
AUDIO. L	AUDIO (L)
AUDIO. R	AUDIO (R)
AV CNT	AV CONTROL
AV CTL	AV CONTROL
AV CTL/S. CLK	AV CONTROL/SERIAL CLOCK
AV. C.M.	AV CONTROL MODE
AVCNT/METER. R	AV CONTROL/LEVEL METER(R)
AVSW/METER. L	AV SW/LEVEL METER (L)
B MODE. H	B MODEⒽ
B.G.P	BURST GATE PULSE
BACKUP 5V	BACK UP 5V
BAND. U.E.	BAND U
BANDVL. D	BAND VL
BI/MI [L]	BILINGUAL/MIXⓁ
BIL	BILINGUAL
BIL [L]	BILINGUAL Ⓗ
BIL. [H]	BILINGUAL Ⓗ
BIL/M1[L]	BILINGUAL Ⓛ
BS CLOCK	BS CLOCK
BS DATA	BS DATA
BS LCH IN	BS L CHANNEL INPUT
BS MIX [H]	BS MIXⒽ
BS MON [H]	BS MONITORⒽ
BS MONI [H]	BS MONITORⒽ
BS RCH IN	BS R CHANNEL INPUT
BS VIDEO	BS VIDEO SIGNAL
BS VIDEO/BS1	BS VIDEO SIGNAL
BS [H]	BSⒽ
BS. LEVEL	BS LEVEL
BS. M [H]	BS MONITORⒽ
BS/VTR [H]	BS/VTRⒽ
BUS CLK	BUS CLOCK
BUS LSN	BUS LISTEN
BUS TLK	BUS TALK
BUZZER	BUZZER
CAP EC	CAPSTAN TORQUE CONTROL
CAP M GND	CAPSTAN MOTOR GND
CAP. ET	CAPSTAN TORQUE CONTROL
CAP. FG1	CAPSTAN FG1 PULSE
CAP. FG2	CAPSTAN FG2 PULSE
CAS. SW	CASSETTE SW
CCN	PLAYBACK CONTROL SIGNAL (–)
CCP	PLAYBACK CONTROL SIGNAL (+)
CHM	CONTROL SIGNAL (+)
CHP	CONTROL SIGNAL (–)
CINEM [L]	CINEMAⓁ
CINEMA [L]	CINEMAⓁ
CINEMA/MIX	CINEMA/MIX
CKL	RATCH LOCK
CKS	SHIFT LOCK
CL	CLOCK
CLK	CLOCK
CLK (C.G)	CLOCK
CLOCK. IN	CLOCK INPUT
CLP	CLAMP
COL/B/W/NOR	COLOUR/BLACK & WHITE/NORMAL
COLOR [H]	COLOURⒽ
CONV	CONVERTOR
CS	CHIP SELECT
CTL GND	CONTROL GND
CTL HEAD [+]	CONTROL HEAD (+)
CTL HEAD [–]	CONTROL HEAD (–)
CTL[+]	CONTROL HEAD (+)
CTL[–]	CONTROL HEAD (–)
CUE BIAS	CUE BIAS
CURRENT LIM	CURRENT LIMITER
CYL ET	CYLINDER TORQUE CONTROL
CYL GND	CYLINDER GND
D.F.M. REC [H]	DELAYED FM RECORDINGⒽ
D. FM REC [L]	DELAYED FM RECORDINGⓁ
D. GND	DIGITAL GND

D. REC [H]	DELAYED RECORDING Ⓗ
D4/S. LED	D4/STILL LED
D4/STILLED	D4/STILL LED
DAC [CLK]	TUNER DAC (CLOCK)
DAC/FSCS	TUNER DAC/FS CHIP SELECT
DAREC [H]	DELAYED AUDIO RECORDING Ⓗ
DATA	DATA
DECODER [L]	DECODER (L)
DECODER [R]	DECODER (R)
DEW	DEW
DEW SNS	DEW SENSOR
DFMRE [H]	DELAYED FM AUDIO RECORDING Ⓗ
E. REC 5V	EXCEPT RECORDING 5V
EC	ERROR TORQUE CONTROL
ECR	ERROR TORQUE CONTROL REFERENCE VOLTAGE
EDT TRIG [L]	EDIT TRIGGER Ⓛ
EDIT [H]	EDIT Ⓗ
EE [H]	EE Ⓗ
EE [H]/INS [M]	EE Ⓗ/INSERT Ⓜ
EE. VV. TR	EE/VV/TRICK PLAY
EJECT. PO	EJECT POSITION
EJECT/VDET	EJECT/REVERSE SLOW LOCK
ENV. SEL	ENVELOPE SELECT
ENVE. OUT	ENVELOPE OUTPUT
ENVE. SEL	ENVELOPE SELECT
ENV SELECT	ENVELOPE SELECT
EP [H]	LP Ⓗ
EP/LP [H]	LP Ⓗ
EP/ LP/SP	LP/SP
EP/SS [H]	LP/SLOW/STILL/STOP Ⓗ
EPROMCS	EPROM CHIP SELECT
EX. REC 5V	EXCEPT RECORDING 5V
FF/REW [L]	FAST FORWARD/REWIND Ⓛ
FG1 IN	FG1 PULSE INPUT
FG2 IN	FG2 PULSE INPUT
FILTER ADJ.	FILTER ADJUSTMENT
FLY ERASE [H]	FLYING ERASE HEAD ON Ⓗ
FLY ON [H]	FLYING ERASE HEAD ON Ⓗ
FLY. E [H]	FLYING ERASE HEAD ON Ⓗ
FM MUT [H]	FM AUDIO MUTE Ⓗ
FM MUTE [H]	FM AUDIO MUTE Ⓗ
FM OUT [L]	FM OUTPUT (L)
FM OUT [R]	FM OUTPUT (R)
FM PACK OUT [L]	FM PACK OUTPUT (L)
FM PACK OUT [R]	FM PACK OUTPUT (R)
FM/BS SEL [L]	FM/BS SELECT (L)
FM/BS SEL [R]	FM/BS SELECT (R)
FS. CLK	FS CLOCK
FUL. E [H]	FULL ERASE HEAD ON Ⓗ
FULL. E [H]	FULL ERASE HEAD ON Ⓗ
FULL. E. 12V	FULL ERASE 12V
GND [A]	GND (ANALOGUE)
GND [TU]	GND (TUNER)
GND/N. SW. 12V	GND/NON SW 12V
H.SYNC	HORIZONTAL SYNC
H. AMP. SW	HEAD AMP SW PULSE
H. P <R>	HEAD PHONE (R)
H. P <L>	HEAD PHONE (L)
H. P GND	HEAD PHONE GND
H. P OUT [L]	HEAD PHONE OUTPUT (L)
H. P OUT [R]	HEAD PHONE OUTPUT (R)
H. SW	HEAD SW PULSE
HEAD PHONE [L]	HEAD PHONE (L)
HEAD PHONE [R]	HEAD PHONE (R)
HEAD SW	HEAD SW
HEATER [+]	HEATER (+)
HEATER [−]	HEATER (−)
HSS	HORIZONTAL SYNC SIGNAL
HTR [+]	HEATER (+)
HTR [−]	HEATER (−)
I RFE	REFERENCE CURRENT
ICL	CONTROL AGC CIRCUIT
IF	INTERMEDIATE FREQUENCY
IN SELA 1	INPUT SELECT A1 POSITION
IN SELA 2	INPUT SELECT A2 POSITION
IN SELA 3	INPUT SELECT A3 POSITION
INS L/R [L]	INSERT Lch/Rch Ⓛ
INS. [H]	INSERT Ⓗ
INSEL A1	INPUT SELECT A1 POSITION
INSEL A2	INPUT SELECT A2 POSITION
INSERT	INSERT
INSERT [H]	INSERT Ⓗ
IO CS	INPUT/OUTPUT CHIP SELECT
JOG1	JOG1
JOG S3 LED/FOWRD	JOG LED/FORWARD LED
JOG/F. LED	JOG LED/FORWARD LED
JSB [H]	JSB Ⓗ
JST. CLCK	JUST CLOCK
JST. CLK	JUST CLOCK
JST. CLOCK	JUST CLOCK
L. OUT	Lch OUTPUT
L. CH [H]	Lch Ⓗ
L. CH [L]	Lch Ⓛ
LED (MAIN)	LED (MAIN)
LED (STEREO)	LED (STEREO)
LED (SUB)	LED (SUB)
LED CKL	LED SERIAL CLOCK
LED CKS	LED SERIAL CLOCK
LED DATA	LED SERIAL DATA
LINE IN 1 [L]	LINE INPUT 1 (L)
LINE IN 1 [R]	LINE INPUT 1 (R)
LINE IN 2 [L]	LINE INPUT 2 (L)
LINE IN 2 [R]	LINE INPUT 2 (R)
LINE IN V	LINE INPUT VIDEO
LINE IN [L]	LINE INPUT (L)
LINE IN [R]	LINE INPUT (R)
LINE OUT [L]	LINE OUTPUT (L)
LINE OUT [R]	LINE OUTPUT (R)
LP [H]	LP Ⓗ

LPTRI [L]	LP TRICK PLAY Ⓛ
Lch/A. DUB	Lch/AUDIO DUBBING
M GND	MOTOR GND
M REG	MOTOR REGULATOR
MAIN OUT	MAIN OUTPUT
MAIN [L]	MAINⓁ
MAIN/MONO	MAIN/MONAURAL
MAX IN	MAXIMUM INPUT
MES [H]	MESECAM Ⓗ
MESE [H]	MESECAM Ⓗ
MESE [L]	MESECAM Ⓗ
METER 5V	LEVEL METER 5V
METER [L]	LEVEL METER (L)
METER [R]	LEVEL METER (R)
METER. L/AVS	LEVEL METER (L)
METER. R/AVC	LEVEL METER (R)
MI/BI [L]	MIX Ⓗ /BILINGUAL
MIC GND	MIC GND
MIC IN	MIC INPUT
MIC IN [L]	MIC INPUT (L)
MIC IN [R]	MIC INPUT (R)
MIC [H]	MICⒽ
MIX [H]	MIXⒽ
MIX [H]/CINEMA [L]	MIXⒽ/CINEMA SOUND Ⓛ
MIX/ CINE	MIXⒽ/CINEMA SOUND Ⓛ
MIX/CINEMA [L]	MIXⒽ/CINEMA SOUND Ⓛ
MN. H/M. L	MONAURALⒽ/MAINⓁ
MN. H/MAI. L	MONAURALⒽ/MAINⓁ
MN2/MES. L	MONAURAL 2/MESECAMⓁ
MODE SEL	AUDIO MODE SELECT
MODE SW	AUDIO MODE SW
MODE. S. IN	AUDIO MODE SELECT INPUT
MODE. S. OUT	AUDIO MODE SELECT OUTPUT
MONO [H]	MONAURAL Ⓗ
MONO [H]/MAIN [L]	MONAURAL Ⓗ/MAINⓁ
MONO2 [L]	MONAURAL 2 Ⓛ
MONO2/MESE[FM(L)]	MONAURAL 2/MESECAM (FM Ⓛ)
MOTOR GND	MOTOR GND
MUTE	MUTE
N. A. REC [L]	NORMAL AUDIO RECORDINGⓁ
N. SW 12V	NON SW 12V
N. SW. 5. DET	NON SW 5V DETECT
NICAM	NICAM
NICAM [L]	NICAMⓁ
NOL [H]	PAL Ⓗ/4.43 NTSC Ⓜ/3.58 NTSC Ⓛ
NOR/SOFT [H]	NORMAL/SOFT TAPE PLAYⒽ
NORMAL [H]	NORMAL Ⓗ
NR BIAS	NR BIAS
NTSC [L]	NTSC Ⓛ
OCH	CONTROL AGC CIRCUIT
OUT	OUTPUT
P-OFF [H]	POWER OFF Ⓗ
P-OFF [L]	POWER OFF Ⓛ
P. FAIL	POWER FAILURE DETECT
P. OFF [H]	POWER OFF Ⓗ

P. OFF [L]	POWER OFF Ⓛ
PAL [H]	PAL Ⓗ
PAL [L]/NTSC [H]	PAL Ⓛ/NTSC Ⓗ
PB ADJ. OUT	PLAYBACK ADJUST OUTPUT
PB OUT	PLAYBACK OUTPUT
PB. H	PLAYBACK Ⓗ
PFG	PG/FG
PHOTSN +B	PHOTO SENSOR +B
PICT. CNT	PICTURE CONTROL
PLAY LED/RVS LED	PLAY LED/REVERSE LED
PLAY. PO	PLAY POSITION
PLAY/R.LED	PLAY LED/REVERSE LED
PLY/DEW	PLAY/DEW Ⓗ
POWER OFF [L]	POWER OFF Ⓛ
PREROLL [H]	PREROLL Ⓗ
PWRFAIL	POWER FAILURE DETECT
R. CH [H]	Rch Ⓗ
R. CH [L]	Rch Ⓛ
R. ST	RESET
R/S/F	REVERSE Ⓗ/STOP Ⓜ/FORWARD Ⓛ
RCH [H]	Rch Ⓗ
REC 12V	RECORDING 12V
REC CHROMA	RECORDING CHROMINANCE SIGNAL
REC H	RECORDINGⒽ
REC IN	RECORDING INPUT
REC OUT [L]	RECORDING OUTPUTⓁ
REC START	RECORDING START
REC VR [C]	RECORDING VOLUME (COMMON)
REC VR [L]	RECORDING VOLUME (L)
REC VR [R]	RECORDING VOLUME (R)
REC Y	RECORDING LUMINANCE SIGNAL
REC [H]	RECORDINGⒽ
REC. C	RECORDING CHROMINANCE SIGNAL
REC. Y	RECORDING LUMINANCE SIGNAL
REC/EE CTL	RECORDING/EE CONTROL
REEL-T	REEL PULSE(TAKE-UP)
REEL-S	REEL PULSE (SUPPLY)
REGULATOR FILTER	REGULATOR FILTER
RESET	RESET
REV M F/R	REVIEW MOTOR FORWARD/REVERSE
REV M V1	REVIEW MOTOR V1
REV M V2	REVIEW MOTOR V2
REV MOTOR F/R	REVIEW MOTOR FORWARD/REVERSE
REV MOTOR V1	REVIEW MOTOR V1
REV MOTOR V2	REVIEW MOTOR V2
REV MOTOR [+]	REVIEW MOTOR (+)
REV MOTOR [−]	REVIEW MOTOR (−)
REV. M. GND	REVIEW MOTOR GND
RF.CHROMA	RF CHROMINANCE SIGNAL
RF OUT	RF OUTPUT
RF Y	RF LUMINANCE SIGNAL
RF. Y. IN	RF LUMINANCE SIGNAL INPUT
RF. Y. OUT	RF LUMINANCE SIGNAL OUTPUT

ROTAR. SW	ROTARY SW
ROTARY	ROTARY SW
RST	RESET
RST [L]	RESETⓁ
Rch/INST	Rch/INSERT
S IN	SERIAL DATA INPUT
S OUT	SERIAL DATA OUTPUT
S-PHOTO	SUPPLY PHOTO TRANSISTOR
S-RL. PLS	SUPPLY REEL PULSE
S. CLK	SERIAL CLOCK
S. CLK/AV	SERIAL CLOCK/AV
S. DATA	SERIAL DATA
S. DATA/A	SERIAL DATA / AUDIO
S. PHOTO	SUPPLY PHOTO TRANSISTOR
S.TAB [L]	SAFETY TAB SW ONⓁ
S/P/N	SECAM/PAL/NTSC
SC IN	SERIAL CLOCK INPUT
SC OUT	SERIAL CLOCK OUTPUT
SCK SELECT	SERIAL CLOCK SELECT
SEL OUT [L]	SELECT OUTPUT (L)
SEL OUT [R]	SELECT OUTPUT (R)
SHUTTLE 1	SHUTTLE 1
SIF	SOUND INTERMEDIATE FREQUENCY
SLMUT [H]	INPUT SELECT MUTEⒽ
SLNID [+]	SOLENOID (+)
SLNID [−]	SOLENOID (−)
SLW TR. MM	SLOW TRACKING MONO MULTI
SLW TR. REF	SLOW TRACKING REFERENCE VOLTAGE
SNS. GND	SENSOR GND
SOFT [H]	SOFT TAPE PLAYⒽ
SOFT [H]/NORMAL	SOFT TAPE PLAY Ⓗ/NORMALⒽ
SOLENOID ON [L]	SOLENOID ONⓁ
SP [H]	SPⒽ
SP/L/SLP	SP/LP
SSS [L]	SLOW/STILL/STOPⓁ
STEREO LED	STEREO LED
STEREO [H]	STEREOⒽ
STEREO [L]	STEREOⓁ
STOP. PO	STOP POSITION
STOP/5V	STOP POSITION/5V
STOP1/TAPE SEL	STOP1 POSITION/TAPE SELECT
STOP1/PAL : ST	STOP 1 POSITION/PAL
STOP2. PO	STOP 2 POSITION
STOP2 / S-TAB	STOP POSITION/SAFETY TAB SW
STREO [H]	STEREOⒽ
SUB BIAS	SUB BIAS
SUB. SW	SUB SW
SVHS CAS [L]	S-VHS CASSETTEⓁ
SW. 5. DET	SW 5V DETECT
SYNC [L]	SYNCⓁ
SYSCON 5V	SYSTEM CONTROL 5V
SYSTEM	SYSTEM SW
T-PHOTO	TAKE-UP PHOTO TRANSISTOR
T-RL. PLS	TAKE-UP REEL PULSE
T. BUSCLK	TIMER BUS CLOCK
T. BUSLSN	TIMER BUS LISTEN
T. BUSTLK	TIMER BUS TALK
T. END [L]	TAPE ENDⓁ
T. PHOTO	TAKE-UP PHOTO TRANSISTOR
TAPE END [L]	TAPE ENDⓁ
TAPE END [L]/CAM	TAPE ENDⓁ/CAMERA PAUSE
TEST	TEST MODE
TPZ	TRAPEZOIDAL WAVE CIRCUIT
TRIC [L]	TRICK PLAYⓁ
TRICK [L]	TRICK PLAYⓁ
TRK. ENV	AUDIO TRACKING ENVELOPE DETECT
TU. AUDIO	TUNER AUDIO
TU. GND	TUNER GND
TU. V. IN	TUNER VIDEO SIGNAL INPUT
TU. VIDEO	TUNER VIDEO
TUN NOR IN	TUNER NORMAL INPUT
TUN R	TUNER AUDIO (R)
TUN. AUDIO IN	TUNER AUDIO INPUT
TUNER 12V	TUNER 12V
TUNER L	TUNER AUDIO (L)
TUNER V IN	TUNER VIDEO SIGNAL INPUT
TUNER [L]	TUNER AUDIO (L)
TUNER [N]	TUNER AUDIO (NORMAL)
TUNER [R]	TUNER AUDIO (R)
TUNER. 12	TUNER 12V
TUOFF [H]	TUNER OFFⒽ
TV. AUDIO	TV AUDIO
TV/VTR	TV/VTR
TXTON [L]	TEXT ONⓁ
U. REG45V	UNREGULATOR 45V
UNREG	UNREGULATOR
UNREG 19V	UNREGULATOR 19V
V. REF	REFERENCE VOLTAGE
V. EE [H]	VIDEO EEⒽ
V. EE [L]	VIDEO EEⓁ
VCO REF	REFERENCE OSCILLATOR
VD. IN	VIDEO SIGNAL INPUT
VD. OUT	VIDEO SIGNAL OUTPUT
VIDEO EE [L]	VIDEO EEⓁ
VIDEO IN	VIDEO SIGNAL INPUT
VIDEO OUT	VIDEO SIGNAL OUTPUT
VM	MOTOR VOLTAGE
VM DOWN [L]	MOTOR VOLTAGE DOWNⓁ
VSS	VERTICAL SYNC SIGNAL
VTR [H]	VTRⒽ
VTR. 12V	VTR 12V
X IN	OSCILLATOR INPUT
X OUT	OSCILLATOR OUTPUT

INPUT/OUTPUT CHART FOR IC6001

<table>
<tr><th>Pin No.</th><th>In/Out</th><th>Port Name</th><th>Function</th></tr>
<tr><td>1</td><td>I</td><td>SQPB_L</td><td>"L":With SQPB / "H":Without SQPB</td></tr>
<tr><td>2</td><td>I/O</td><td>A.DEF/NORM</td><td>A.DEF / NORMAL switching port</td></tr>
<tr><td>3</td><td>I</td><td>AFC(S)</td><td>S-curve input terminal (From Tuner)
<table>
<tr><th>Input Voltage</th><th>AFC</th></tr>
<tr><td>Over 2.80V</td><td>AFC_UP</td></tr>
<tr><td>1.87V - 2.80V</td><td>-</td></tr>
<tr><td>Less 1.87V</td><td>AFC_DN</td></tr>
</table></td></tr>
<tr><td>4</td><td>I/O</td><td>AUTO_SEARCH (L)</td><td>AGC Gain switching signal (During Tuner search)
"L": Search(Gain Max.) / High Impedance : Normal</td></tr>
<tr><td>5</td><td>I</td><td>VSS</td><td>GND</td></tr>
<tr><td>6</td><td>I</td><td>NORM/SERV/T2/TEST</td><td>Mode select terminal
<table>
<tr><th>Input Voltage</th><th>Mode</th></tr>
<tr><td>Over 4.0V</td><td>Normal</td></tr>
<tr><td>2.5V - 4.0V</td><td>Service</td></tr>
<tr><td>1.0V - 2.5V</td><td>Test 2</td></tr>
<tr><td>Less 1.0V</td><td>Test 1</td></tr>
</table></td></tr>
<tr><td>7</td><td>I</td><td>S-PHOTO</td><td>Tape End sensor input terminal
NORMAL:Over 2.6V Tape End:Less than 2.4V</td></tr>
<tr><td>8</td><td>I</td><td>T-PHOTO</td><td>Tape Beginning sensor input terminal
NORMAL:Over 2.6V Tape Beg.:Less than 2.4V</td></tr>
<tr><td>9</td><td>I</td><td>TRACKING ENVE</td><td>Video envelope input terminal</td></tr>
<tr><td>10</td><td>I</td><td>MO/ST/SAP</td><td>Tuning channel's Audio mode detection [NV-FJ600 series only]
<table>
<tr><th>Input Voltage</th><th>Audio Mode</th></tr>
<tr><td>Over 3.3V</td><td>Mono</td></tr>
<tr><td>1.67V - 3.3V</td><td>Stereo</td></tr>
<tr><td>Less 1.67V</td><td>SAP</td></tr>
</table></td></tr>
<tr><td>11</td><td>O</td><td>CURRENT LIMIT</td><td>Current limit terminal for Capstan
(Impedance Min:1K, TYP:2.5K, MAX:4.0K)</td></tr>
<tr><td>12</td><td>O</td><td>EEPROM_CS</td><td>Chip select terminal for NAVI-EEPROM ("L":Active)</td></tr>
<tr><td>13</td><td>O</td><td>ART.V/H/N</td><td>Artificial V output terminal (Data writing:Hi-z)</td></tr>
<tr><td>14</td><td>I</td><td>REMOCON</td><td>Remote controller's command input terminal</td></tr>
<tr><td>15</td><td>I</td><td>KILLER/PAL-M</td><td>When the "SYSTEM_SW" is AUTO,
[EE] judgement OK:Low NG:High
[VV] judgement PAL_M:High NTSC:Low</td></tr>
<tr><td>16</td><td>O</td><td>Q_SOUND ON(H)</td><td>Q.Sound control terminal
Q.Sound ON:High
Q.Sound OFF:Low</td></tr>
<tr><td>17</td><td>O</td><td>PAL_CONV(L)</td><td>During the NTSC - PAL conversion, it adjusts the delay time.
[EE]High
[VV]The condition changes D6 & 15 of IIC data and Trick signal.
<table>
<tr><th>D6</th><th>D15</th><th>TRICK</th><th>Output</th></tr>
<tr><td>0</td><td>0</td><td>-</td><td>H</td></tr>
<tr><td>0</td><td>1</td><td>-</td><td>L</td></tr>
<tr><td>1</td><td>-</td><td>L</td><td>H</td></tr>
<tr><td>1</td><td>-</td><td>H</td><td>L</td></tr>
</table></td></tr>
<tr><td>18</td><td>O</td><td>VIDEO.H.SW</td><td>Video Head Switching Signal ("H":L'/R / "L": R'/L)</td></tr>
<tr><td>19</td><td>O</td><td>AUDIO.H.SW</td><td>Audio Head Switching Signal</td></tr>
<tr><td>20</td><td>O</td><td>D.REC(H)</td><td>Timing signal for video rec current (Syncro:H.SW)</td></tr>
<tr><td>21</td><td>O</td><td>NC</td><td></td></tr>
<tr><td>22</td><td>O</td><td>MONO(H)</td><td>MONO Mode settings [NV-FJ600 series only]</td></tr>
<tr><td>23</td><td>I</td><td>ABS_NORM(L)/A.ADJ</td><td>When the Hifi Audio Enve.becomes low, it turns Low.[NV-FJ600 series only]
"L":Normal(Mono) / "H":Others)</td></tr>
<tr><td>24</td><td>O</td><td>NC</td><td>Low:Fix</td></tr>
<tr><td>25</td><td>O</td><td>EP(H)</td><td>Tape rec mode
LOW:[NTSC(2H)/PAL(3H)]
HIGH:[NTSC(4H)/NTSC(6H)/PAL(6H)/NTSC(10H)]</td></tr>
</table>

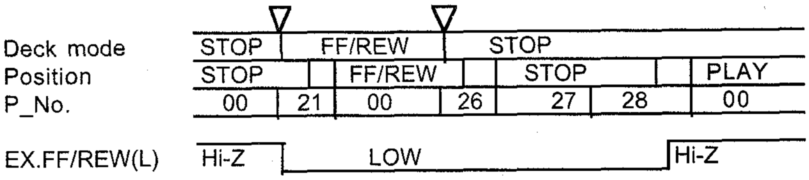
Pin No.	In/Out	Port Name	Function
26	O	BIAS(H)	Timing Terminal for Linear Audio It supplies "High"by synchronizing the D.REC(H) timing. Rec start(H):After D.REC (H) existed 140-160msec later. Rec end (Low):After D.REC(L) existed 0-20msec later.
27	I	S.TAB(L)	Safety-tab detection "L":No safety-tab / "H":With Safety-tab
28	O	FM.MUTE(H)	Audio Mute control terminal High:*Power off/Head Cleaning/Timer standby/VPS-PDC standby (When they released, it becomes low in 600msec later.) *Tape speed is other than X1 speed in the VV mode. (When speed becomes X1, it becomes low in 600msec later.) *EE-VV turning point. (After switched, it becomes low in 600msec later.) *"Pin 2(J.CLK/A.DEF/NORM)" is A.DEFmode.
29	I	ABS_TV(L)	Selection for "VTR/TV switching" or "Absolutely TV" mode Low: Absolutely TV mode High:VTR/TV switching mode.
30	O	VTR(H)/TV(L)	TV/VTR mode selection terminal.

	Pin 29			
	(L)	(H)		
		P.Off	EE to VV	O.than left
Pin 30	L	L	H	Reverse

Pin No.	In/Out	Port Name	Function
31	I	POS.SW3	Mecha.Position data input terminal.
32	I	POS.SW2	
33	I	POS.SW1	

SW1	SW2	SW3	POSITION
0	0	0	C EJECT
0	0	1	F EJECT
0	1	0	REV
0	1	1	MID
1	0	0	PLAY
1	0	1	STOP
1	1	0	FF/REW
1	1	1	Others

Pin No.	In/Out	Port Name	Function
34	I	RESET	Reset Terminal
35	I	32KHz IN	Sub clock (32.768KHz) input.
36	O	32KHz OUT	Sub clock (32.768KHz) output.
37	-	5V (D)	VCC for Digital port
38	I	16KHz IN	Main clock (12/16MHz) input.
39	O	16KHz OUT	Main clock (12/16MHz) output.
40	-	GND	GND
41	I/O	OSD_ON(H)	OSD OFF (L) / POW OFF (L)
42	O	NC	
43	I	32K.START(L)	Clock source selection terminal at reset start *12/16MHz high-speed mode (Connect to 5V) *32KHz low speed mode (Connect to Vss(0V))
44	I	LC.OSC.IN	LC oscillation input terminal
45	O	LC.OSC.OUT	LC oscillation output terminal
46	-	GND	GND
47	I	4FC.LPF	Filter connection terminal for internal sync generator.
48	I	OSD.FSC.IN	FSC input terminal for sync generator.
49	-	GND(OSD)	GND for OSD circuit.
50	I	CVIN	Composite Video Input terminal.
51	I	CUE/REV	Cue/Rev speed control (H:9/27 L:11/35)
52	O	CVOUT	Composite Video Output terminal.
53	-	5V(OSD)	VCC for 5V
54	I	HLF	Connection terminal for slicer
55	I	VHOLD	Connection terminal for reference voltage generator for slicer
56	I	CVIN(EDS)	Composite Video Input terminal for slicer
57	-	GND	GND
58	I	C.SYNC	Input terminal for C-sync
59	O	NC	
60	O	NC	
61	O	MTS(H)	"H":Stereo (MTS) / "L":Others (SAP) [NV-FJ600 series only]
62	O	CVC ON (H)	CVC ON :"H"
63	O	VBI2	NAVI data writing: Existing data mask pulse (Others:Hi-Impedance)
64	O	VBI1	NAVI data writing: Existing data writing pulse (Others:Hi-Impedance)

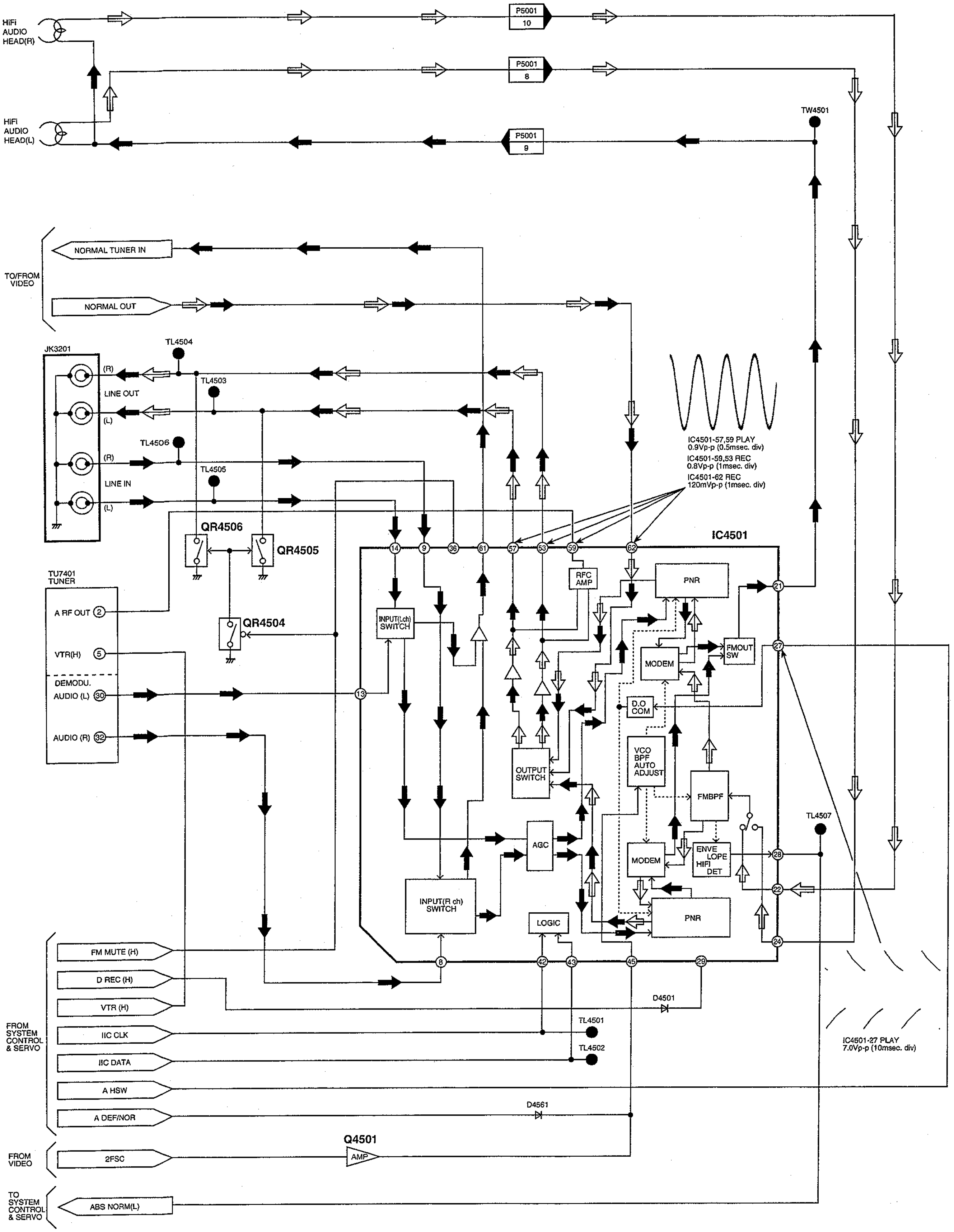
<table>
<tr><th>Pin No.</th><th>In/Out</th><th>Port Name</th><th>Function</th></tr>
<tr><td>65</td><td>O</td><td>FLD_CS</td><td>Chip Select for FIP driver (Active "L")</td></tr>
<tr><td>66</td><td>O</td><td>UNLOADING (H)</td><td>Loading motor control terminal (Unloading "H")</td></tr>
<tr><td>67</td><td>O</td><td>LOADING (H)</td><td>Loading motor control terminal (Loading "H")</td></tr>
<tr><td>68</td><td>O</td><td>IC DATA OUT</td><td>Timer bus signal for IC control (Data input)</td></tr>
<tr><td>69</td><td>I</td><td>IC DATA IN</td><td>Timer bus signal for IC control (Data output)</td></tr>
<tr><td>70</td><td>O</td><td>IC DATA CLK</td><td>Timer bus signal for IC control (Clock output)</td></tr>
<tr><td>71</td><td>O</td><td>IIC CLK</td><td>Serial Clock (IIC) terminal for AV/FM audio IC</td></tr>
<tr><td>72</td><td>I/O</td><td>IIC DATA</td><td>Serial Data (IIC) terminal for AV/FM audio IC</td></tr>
<tr><td>73</td><td>O</td><td>125Hz</td><td>"H":ROM setting up bit ON / "L":ROM setting up bit OFF</td></tr>
<tr><td>74</td><td>O</td><td>CAP R/F</td><td>Capstan rotation direction control ("H":Reverse / "L":Foward)</td></tr>
<tr><td>75</td><td>I/O</td><td>HALF WAVE (H)</td><td>Capstan motor drive control ("H":Half-wave / "L":All-wave)</td></tr>
<tr><td>76</td><td>O</td><td>CAP_ET</td><td>Power supply for capstan motor</td></tr>
<tr><td>77</td><td>O</td><td>CYL_ET</td><td>Power supply for cylinder motor</td></tr>
<tr><td>78</td><td>I</td><td>P.FAIL(L)</td><td>Input terminal for power failure detection. (Low input = Power failure det.)</td></tr>
<tr><td>79</td><td>I</td><td>S.REEL PULSE</td><td>Supply Reel sensor pulse input terminal.</td></tr>
<tr><td>80</td><td>I</td><td>T.REEL PULSE</td><td>Take-up Reel sensor pulse input terminal.</td></tr>
<tr><td>81</td><td>O</td><td>NC</td><td></td></tr>
<tr><td>82</td><td>I/O</td><td>EX.FF/REW (L)</td><td>CTL signal filter sw during FF/REW operation.


Deck mode
STOP
FF/REW
STOP
Position
STOP
FF/REW
STOP
PLAY
P_No.
00
21
00
26
27
28
00
EX.FF/REW(L)
Hi-Z
LOW
Hi-Z

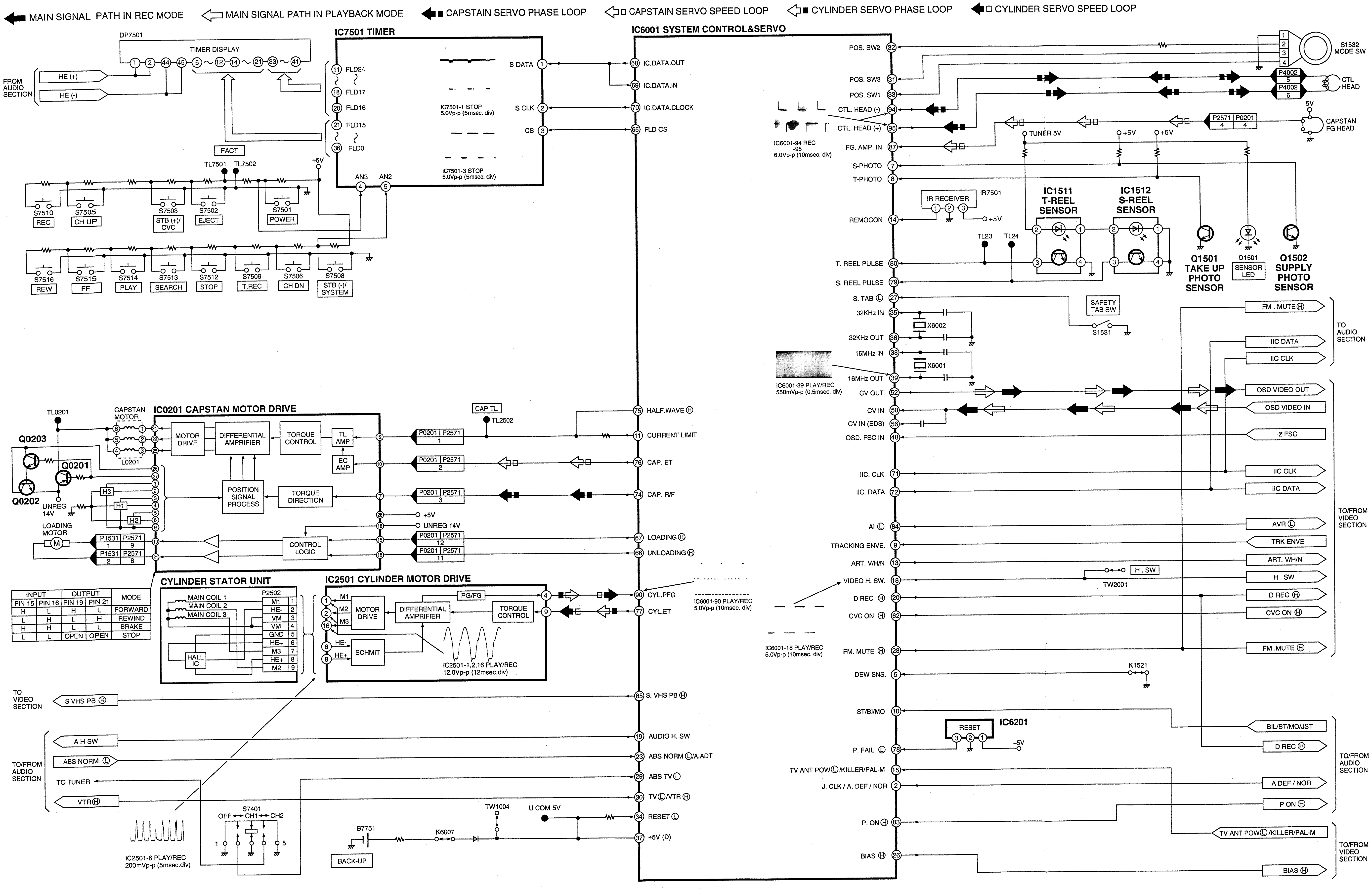
</td></tr>
<tr><td>83</td><td>O</td><td>P.ON(H)</td><td>Power control signal for the VCR unit
"L":Power off (power off/ Timer standby) mode.
"H":*power off mode.
(head cleaning, timer prog.conf, VPS/PDC standby etc.)</td></tr>
<tr><td>84</td><td>I/O</td><td>AVR(L)</td><td>Artificial AI playback terminal
<table>
<tr><td>Timer mode</td><td>Hi-Z to L</td><td>L to Hi-z</td></tr>
<tr><td>SP</td><td>Less 2.15V</td><td>Over 2.25V</td></tr>
<tr><td>LP/EP</td><td>Less 1.85V</td><td>Over 1.95V</td></tr>
</table></td></tr>
<tr><td>85</td><td>I</td><td>S_VHS PB (H)</td><td>SVHS Mode selection terminal ("H":S-VHS)</td></tr>
<tr><td>86</td><td>O</td><td>FG AMP OUT</td><td>Output terminal for Capstan FG AMP.</td></tr>
<tr><td>87</td><td>I</td><td>FG AMP IN</td><td>Input terminal for Capstan FG AMP.</td></tr>
<tr><td>88</td><td>-</td><td>GND(A)</td><td>GND for analogue.</td></tr>
<tr><td>89</td><td>I</td><td>SHUTTLE</td><td>JOG/Shuttle selection terminal
"H":With JOG/Shuttle / "L":Without JOG/Shuttle.</td></tr>
<tr><td>90</td><td>I</td><td>CYL_PFG</td><td>Cylinder PG/FG pulse input terminal</td></tr>
<tr><td>91</td><td>O</td><td>OREF</td><td>1/2 VDD reference voltage output terminal for analogue AMP.</td></tr>
<tr><td>92</td><td>I</td><td>IREF</td><td>1/2 VDD reference voltage input terminal for analogue AMP.</td></tr>
<tr><td>93</td><td>I</td><td>VDD</td><td></td></tr>
<tr><td>94</td><td>I/O</td><td>CTL HEAD (-)</td><td>Input/output terminal for control head (-) side.</td></tr>
<tr><td>95</td><td>I/O</td><td>CTL HEAD (+)</td><td>Input/output terminal for control head (+) side.</td></tr>
<tr><td>96</td><td>I</td><td>CTL AMP REF</td><td>Capacitor connection terminal for control amp ref.</td></tr>
<tr><td>97</td><td>O</td><td>PB CTL OUT</td><td>Control AMP output terminal</td></tr>
<tr><td>98</td><td>-</td><td>5V(A)</td><td>Reference power supply terminal for Analogue AMP</td></tr>
<tr><td>99</td><td>-</td><td>5V(AD)</td><td>Reference power supply terminal for AD/8 bit DA</td></tr>
<tr><td>100</td><td>I</td><td>P.FAIL2</td><td>Not used</td></tr>
</table>

3-2. Hi-Fi AUDIO SECTION BLOCK DIAGRAM (NV-FJ600PM)

⬅ AUDIO MAIN SIGNAL PATH IN PLAYBACK MODE˚
⇦ AUDIO MAIN SIGNAL PATH IN REC MODE˚

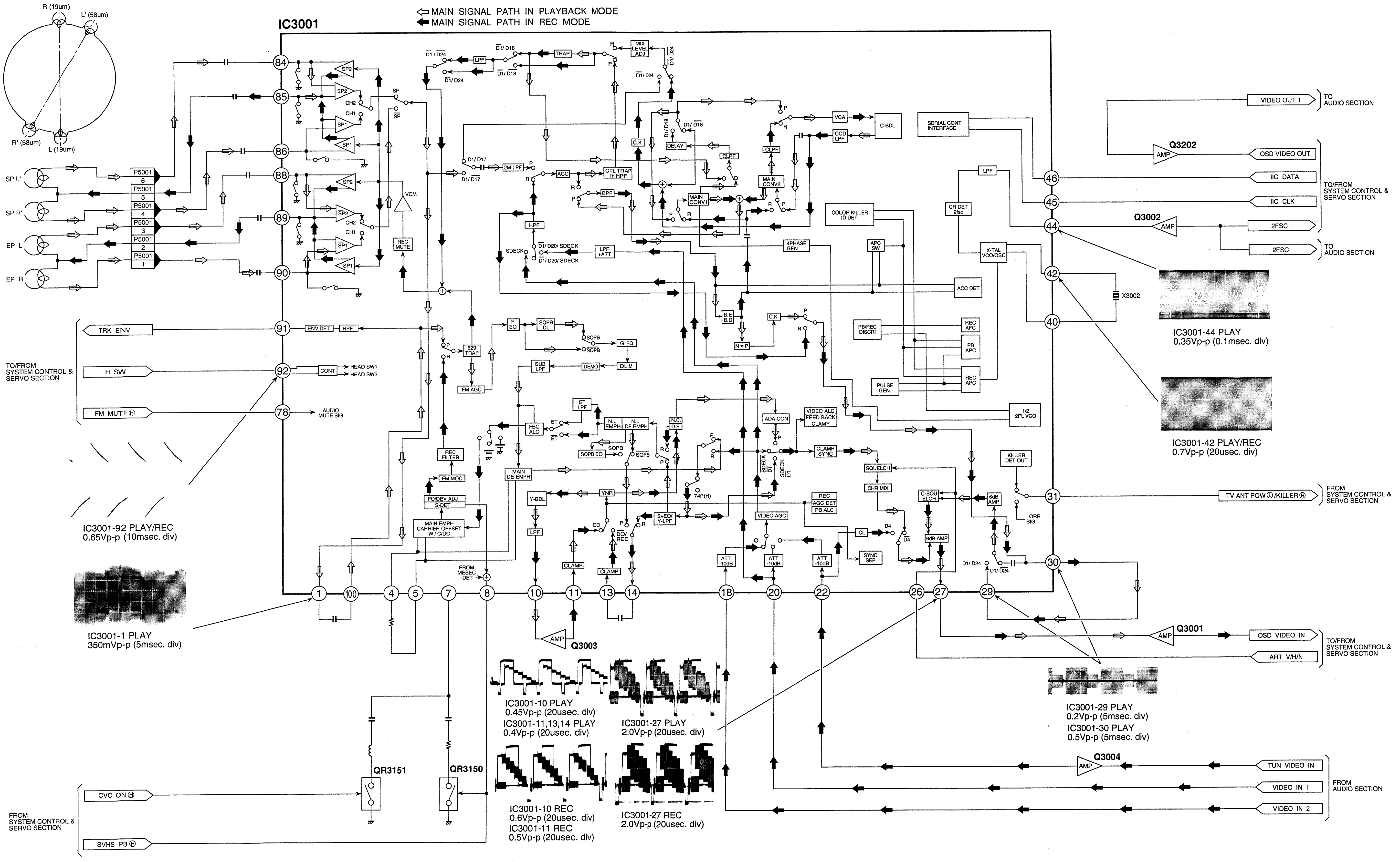

HiFi AUDIO HEAD(R)
HiFi AUDIO HEAD(L)
P5001 10
P5001 8
P5001 9
TW4501
TO/FROM VIDEO
NORMAL TUNER IN
NORMAL OUT
JK3201
TL4504
(R)
TL4503
LINE OUT
(L)
TL4506
(R)
TL4505
LINE IN
(L)
QR4506
QR4505
QR4504
TU7401 TUNER
A RF OUT ②
VTR(H) ⑤
DEMODU.
AUDIO (L) ㉚
AUDIO (R) ㉜
IC4501-57,59 PLAY
0.9Vp-p (0.5msec. div)
IC4501-59,53 REC
0.8Vp-p (1msec. div)
IC4501-62 REC
120mVp-p (1msec. div)
IC4501
⑭
⑨
㊱
(61)
(57)
(53)
(59)
(62)
RFC AMP
PNR
㉑
INPUT(Lch) SWITCH
MODEM
FMOUT SW
㉗
⑬
D.O COM
VCO BPF AUTO ADJUST
OUTPUT SWITCH
FMBPF
TL4507
AGC
MODEM
ENVE LOPE HIFI DET
㉘
INPUT(R ch) SWITCH
㉒
LOGIC
PNR
㉔
⑧
㊷
㊸
㊺
㉙
FROM SYSTEM CONTROL & SERVO
FM MUTE (H)
D REC (H)
D4501
VTR (H)
TL4501
IIC CLK
TL4502
IIC DATA
IC4501-27 PLAY
7.0Vp-p (10msec. div)
A HSW
D4561
A DEF/NOR
Q4501
FROM VIDEO
2FSC
AMP
TO SYSTEM CONTROL & SERVO
ABS NORM(L)

3-3. SYSTEM CONTROL & SERVO/TIMER SECTION BLOCK DIAGRAM


MAIN SIGNAL PATH IN REC MODE
MAIN SIGNAL PATH IN PLAYBACK MODE
CAPSTAIN SERVO PHASE LOOP
CAPSTAIN SERVO SPEED LOOP
CYLINDER SERVO PHASE LOOP
CYLINDER SERVO SPEED LOOP
DP7501
TIMER DISPLAY
① ② ㊹ ㊺ ⑤ ~ ⑫ ⑭ ~ ㉑ ㉝ ~ ㊶
FROM AUDIO SECTION
HE (+)
HE (-)
IC7501 TIMER
⑪ FLD24
⑱ FLD17
⑳ FLD16
㉑ FLD15
㊱ FLD0
IC7501-1 STOP
5.0Vp-p (5msec. div)
IC7501-3 STOP
5.0Vp-p (5msec. div)
S DATA ①
S CLK ②
CS ③
AN3 ④
AN2 ⑤
FACT
TL7501
TL7502
+5V
S7510 REC
S7505 CH UP
S7503 STB (+)/CVC
S7502 EJECT
S7501 POWER
S7516 REW
S7515 FF
S7514 PLAY
S7513 SEARCH
S7512 STOP
S7509 T.REC
S7506 CH DN
S7508 STB (-)/SYSTEM
IC6001 SYSTEM CONTROL&SERVO
68 IC.DATA.OUT
69 IC.DATA.IN
70 IC.DATA.CLOCK
65 FLD CS
POS. SW2 32
POS. SW3 31
POS. SW1 33
CTL. HEAD (-) 94
CTL. HEAD (+) 95
IC6001-94 REC
-95
6.0Vp-p (10msec. div)
FG. AMP. IN 87
S-PHOTO 7
T-PHOTO 8
REMOCON 14
T. REEL PULSE 80
S. REEL PULSE 79
S. TAB Ⓛ 27
32KHz IN 35
32KHz OUT 36
16MHz IN 38
16MHz OUT 39
IC6001-39 PLAY/REC
550mVp-p (0.5msec. div)
CV OUT 52
CV IN 50
CV IN (EDS) 56
OSD. FSC IN 48
IIC. CLK 71
IIC. DATA 72
AI Ⓛ 84
TRACKING ENVE. 9
ART. V/H/N 13
VIDEO H. SW. 18
D REC Ⓗ 20
CVC ON Ⓗ 62
IC6001-18 PLAY/REC
5.0Vp-p (10msec. div)
FM. MUTE Ⓗ 28
DEW SNS. 5
ST/BI/MO 10
P. FAIL Ⓛ 78
TV ANT POWⓁ/KILLER/PAL-M 15
J. CLK / A. DEF / NOR 2
P. ON Ⓗ 83
BIAS Ⓗ 26
S1532 MODE SW
1 2 3 4
P4002 5
P4002 6
CTL HEAD
5V
P2571 P0201 4 4
CAPSTAN FG HEAD
TUNER 5V
+5V
+5V
IR RECEIVER
IR7501
① ② ③
+5V
TL23
TL24
IC1511 T-REEL SENSOR
IC1512 S-REEL SENSOR
Q1501 TAKE UP PHOTO SENSOR
D1501 SENSOR LED
Q1502 SUPPLY PHOTO SENSOR
SAFETY TAB SW
S1531
X6002
X6001
FM . MUTE Ⓗ
IIC DATA
IIC CLK
TO AUDIO SECTION
OSD VIDEO OUT
OSD VIDEO IN
2 FSC
IIC CLK
IIC DATA
AVR Ⓛ
TRK ENVE
ART. V/H/N
H . SW
TW2001
D REC Ⓗ
CVC ON Ⓗ
FM .MUTE Ⓗ
TO/FROM VIDEO SECTION
K1521
RESET
IC6201
+5V
BIL/ST/MO/JST
D REC Ⓗ
A DEF / NOR
P ON Ⓗ
TO/FROM AUDIO SECTION
TV ANT POWⓁ/KILLER/PAL-M
BIAS Ⓗ
TO/FROM VIDEO SECTION
TL0201
CAPSTAN MOTOR
L0201
Q0203
Q0201
Q0202
UNREG 14V
H3
H1
H2
LOADING MOTOR
M
P1531 P2571 1 9
P1531 P2571 2 8
IC0201 CAPSTAN MOTOR DRIVE
MOTOR DRIVE
DIFFERENTIAL AMPRIFIER
TORQUE CONTROL
TL AMP
EC AMP
POSITION SIGNAL PROCESS
TORQUE DIRECTION
CONTROL LOGIC
+5V
UNREG 14V
CAP TL
TL2502
P0201 P2571 1
P0201 P2571 2
P0201 P2571 3
P0201 P2571 12
P0201 P2571 11
75 HALF.WAVE Ⓗ
11 CURRENT LIMIT
76 CAP. ET
74 CAP. R/F
67 LOADING Ⓗ
66 UNLOADING Ⓗ
CYLINDER STATOR UNIT
MAIN COIL 1
MAIN COIL 2
MAIN COIL 3
HALL IC
P2502
M1 1
HE- 2
VM 3
VM 4
GND 5
HE+ 6
M3 7
HE+ 8
M2 9
IC2501 CYLINDER MOTOR DRIVE
M1
M2
M3
MOTOR DRIVE
DIFFERENTIAL AMPRIFIER
TORQUE CONTROL
PG/FG
HE-
HE+
SCHMIT
IC2501-1,2,16 PLAY/REC
12.0Vp-p (12msec.div)
90 CYL.PFG
77 CYL.ET
IC6001-90 PLAY/REC
5.0Vp-p (10msec. div)
TO VIDEO SECTION
S VHS PB Ⓗ
85 S. VHS PB Ⓗ
TO/FROM AUDIO SECTION
A H SW
ABS NORM Ⓛ
TO TUNER
VTRⒽ
19 AUDIO H. SW
23 ABS NORM Ⓛ/A.ADT
29 ABS TVⓁ
30 TVⓁ/VTR Ⓗ
34 RESET Ⓛ
37 +5V (D)
IC2501-6 PLAY/REC
200mVp-p (5msec.div)
S7401
OFF ↔ CH1 ↔ CH2
1
5
B7751
BACK-UP
K6007
TW1004
U COM 5V

INPUT		OUTPUT		MODE
PIN 15	PIN 16	PIN 19	PIN 21	
H	L	H	L	FORWARD
L	H	L	H	REWIND
H	H	L	L	BRAKE
L	L	OPEN	OPEN	STOP

3-4. VIDEO SECTION BLOCK DIAGRAM


R (19um)
L' (58um)
R' (58um)
L (19um)
MAIN SIGNAL PATH IN PLAYBACK MODE
MAIN SIGNAL PATH IN REC MODE
IC3001
SP L'
SP R'
EP L
EP R
P5001
SP2
SP1
CH2
CH1
SP
VCM
REC MUTE
TRK ENV
H. SW
FM MUTE Ⓗ
TO/FROM SYSTEM CONTROL & SERVO SECTION
ENV DET
HPF
CONT
HEAD SW1
HEAD SW2
AUDIO MUTE SIG
LPF
TRAP
MIX LEVEL ADJ
D1/D24
D1/D18
D1/D17
2M LPF
ACC
CTL TRAP fh HPF
BPF
C.K
DELAY
CLPF
MAIN CONV1
MAIN CONV2
VCA
CCD LPF
C-BDL
SERIAL CONT INTERFACE
CR DET 2fsc
X-TAL VCO/OSC
COLOR KILLER ID DET.
APC SW
4PHASE GEN
ACC DET
HPF
D1/D20/SDECK
SDECK
LPF +ATT
P EQ
SQPB DL
SQPB
G EQ
629 TRAP
SUB LPF
DEMO
DLIM
FM AGC
B.E B.D
N→P
PB/REC DISCRI
REC AFC
PB APC
REC APC
PULSE GEN.
1/2 2FL VCO
X3002
ET LPF
N.L. EMPH
N.L. DE EMPH
N.C. D.E.
FBC ALC
ET
SQPB EQ
ADA.CON
VIDEO ALC FEED BACK CLAMP
CLAMP SYNC
SQUELCH
CHR MIX
KILLER DET OUT
REC FILTER
FM MOD
FO/DEV ADJ S-DET
MAIN EMPH CARRIER OFFSET W/C/DC
MAIN DE-EMPH
Y-BDL
YNR
74P(H)
S+EQ/Y-LPF
DO/REC
DO
REC AGC DET PB ALC
VIDEO AGC
CL
D4
SYNC. SEP.
C-SQU ELCH
6dB AMP
LORR. SIG
CLAMP
ATT -10dB
FROM MESEC -DET
Q3003
AMP
QR3151
QR3150
CVC ON Ⓗ
SVHS PB Ⓗ
FROM SYSTEM CONTROL & SERVO SECTION
VIDEO OUT 1
TO AUDIO SECTION
Q3202
OSD VIDEO OUT
IIC DATA
IIC CLK
Q3002
2FSC
TO AUDIO SECTION
TV ANT POW Ⓛ/KILLER Ⓗ
FROM SYSTEM CONTROL & SERVO SECTION
Q3001
OSD VIDEO IN
ART V/H/N
TO/FROM SYSTEM CONTROL & SERVO SECTION
Q3004
TUN VIDEO IN
VIDEO IN 1
VIDEO IN 2
FROM AUDIO SECTION
84
85
86
88
89
90
91
92
78
46
45
44
42
40
31
30
1
100
4
5
7
8
10
11
13
14
18
20
22
26
27
29

IC3001-44 PLAY
0.35Vp-p (0.1msec. div)

IC3001-42 PLAY/REC
0.7Vp-p (20usec. div)

IC3001-92 PLAY/REC
0.65Vp-p (10msec. div)

IC3001-1 PLAY
350mVp-p (5msec. div)

IC3001-10 PLAY
0.45Vp-p (20usec. div)
IC3001-11,13,14 PLAY
0.4Vp-p (20usec. div)

IC3001-27 PLAY
2.0Vp-p (20usec. div)

IC3001-29 PLAY
0.2Vp-p (5msec. div)
IC3001-30 PLAY
0.5Vp-p (5msec. div)

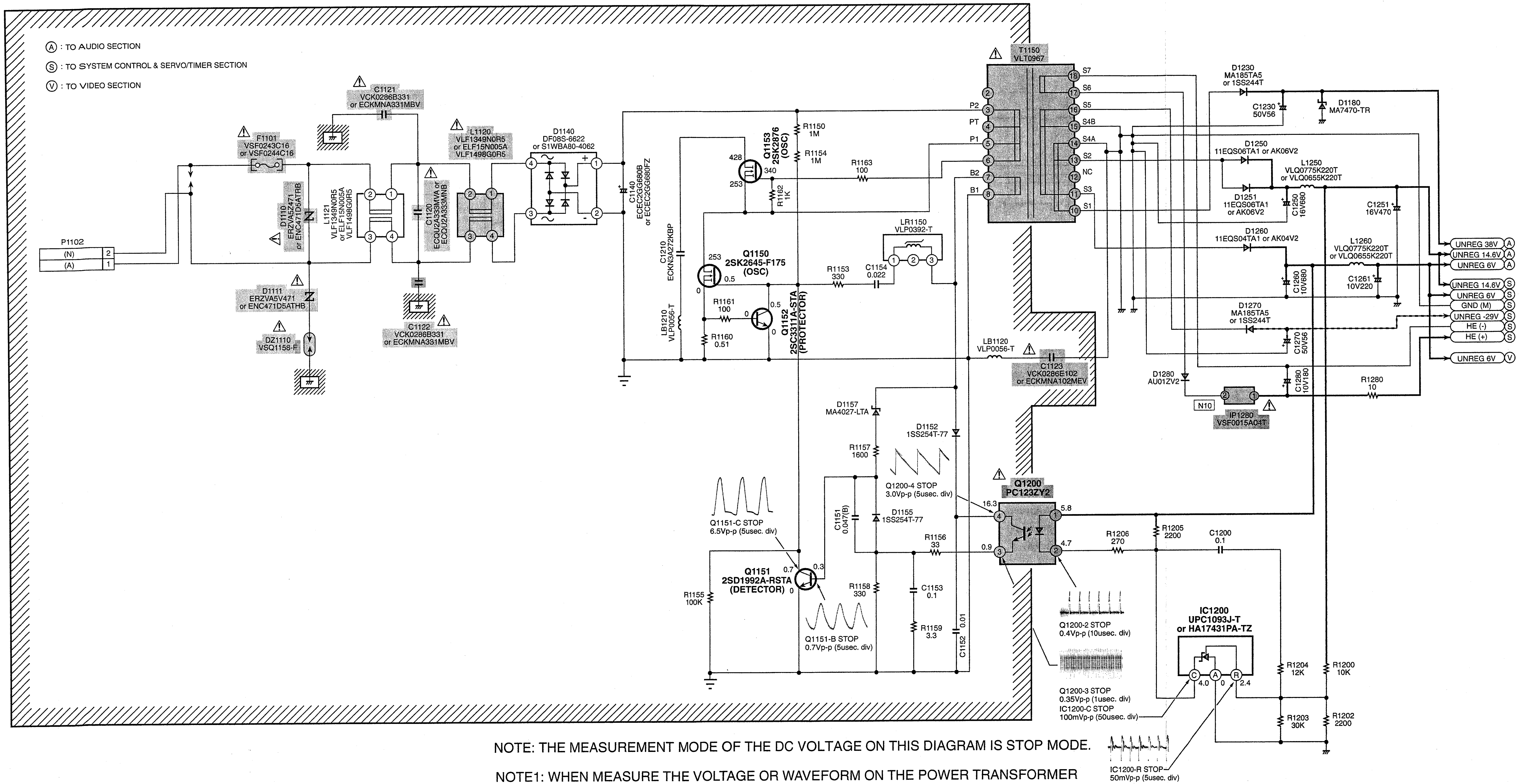
IC3001-10 REC
0.6Vp-p (20usec. div)
IC3001-11 REC
0.5Vp-p (20usec. div)

IC3001-27 REC
2.0Vp-p (20usec. div)

3-5. POWER SECTION IN MAIN SCHEMATIC DIAGRAM

CAUTION

THE ▨ MARK INDICATES THE PRIMARY CIRCUIT TO DISTINGUISH THE PRIMARY FROM THE SECONDARY CIRCUIT.
PAY ATTENTION NOT TO RECEIVE AN ELECTRIC SHOCK DURING REPAIR AND SERVICE OF THE PRODUCTS.


HOT
Ⓐ : TO AUDIO SECTION
Ⓢ : TO SYSTEM CONTROL & SERVO/TIMER SECTION
Ⓥ : TO VIDEO SECTION
P1102
(N) 2
(A) 1
F1101
VSF0243C16
or VSF0244C16
D1110
ERZVA5Z471
or ENC471D5ATRB
D1111
ERZVA5V471
or ENC471D5ATHB
DZ1110
VSQ1158-F
L1121
VLF1349N0R5
or ELF15N005A
VLF1498G0R5
C1121
VCK0286B331
or ECKMNA331MBV
C1120
ECQU2A333MVA or
ECQU2A333MNB
C1122
VCK0286B331
or ECKMNA331MBV
L1120
VLF1349N0R5
or ELF15N005A
VLF1498G0R5
D1140
DF08S-6622
or S1WBA80-4062
C1140
ECEC2GG680B
or ECEC2GG680FZ
C1210
ECKN3A272KBP
LB1210
VLP0056-T
Q1153
2SK2876
(OSC)
428
340
253
R1150
1M
R1154
1M
R1162
1K
R1163
100
Q1150
2SK2645-F175
(OSC)
253
0.5
0
R1161
100
R1160
0.51
Q1152
2SC3311A-STA
(PROTECTOR)
0.5
0
0
R1153
330
C1154
0.022
LR1150
VLP0392-T
LB1120
VLP0056-T
C1123
VCK0286E102
or ECKMNA102MEV
T1150
VLT0967
P2
PT
P1
B2
B1
S7
S6
S5
S4B
S4A
S2
NC
S3
S1
D1230
MA185TA5
or 1SS244T
C1230
50V56
D1180
MA7470-TR
D1250
11EQS06TA1 or AK06V2
L1250
VLQ0775K220T
or VLQ0655K220T
D1251
11EQS06TA1
or AK06V2
C1250
16V680
C1251
16V470
D1260
11EQS04TA1 or AK04V2
L1260
VLQ0775K220T
or VLQ0655K220T
C1260
10V680
C1261
10V220
D1270
MA185TA5
or 1SS244T
C1270
50V56
D1280
AU01ZV2
N10
IP1280
VSF0015A04T
C1280
10V180
R1280
10
UNREG 38V Ⓐ
UNREG 14.6V Ⓐ
UNREG 6V Ⓐ
UNREG 14.6V Ⓢ
UNREG 6V Ⓢ
GND (M) Ⓢ
UNREG -29V Ⓢ
HE (-) Ⓢ
HE (+) Ⓢ
UNREG 6V Ⓥ
D1157
MA4027-LTA
D1152
1SS254T-77
R1157
1600
Q1200-4 STOP
3.0Vp-p (5usec. div)
C1151
0.047(B)
D1155
1SS254T-77
R1156
33
Q1151-C STOP
6.5Vp-p (5usec. div)
Q1151
2SD1992A-RSTA
(DETECTOR)
0.7
0.3
0
R1155
100K
R1158
330
C1153
0.1
R1159
3.3
C1152
0.01
Q1151-B STOP
0.7Vp-p (5usec. div)
Q1200
PC123ZY2
16.3
5.8
0.9
4.7
R1206
270
R1205
2200
C1200
0.1
Q1200-2 STOP
0.4Vp-p (10usec. div)
Q1200-3 STOP
0.35Vp-p (1usec. div)
IC1200-C STOP
100mVp-p (50usec. div)
IC1200
UPC1093J-T
or HA17431PA-TZ
C
A
R
4.0
0
2.4
R1204
12K
R1200
10K
R1203
30K
R1202
2200
IC1200-R STOP
50mVp-p (5usec. div)

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

NOTE1: WHEN MEASURE THE VOLTAGE OR WAVEFORM ON THE POWER TRANSFORMER CIRCUIT, SET THE GND TERMINAL OF MEASURING POINT AS FOLLOWS.
PRIMARY SIDE..... ⏚
SECONDARY SIDE..... ⏊

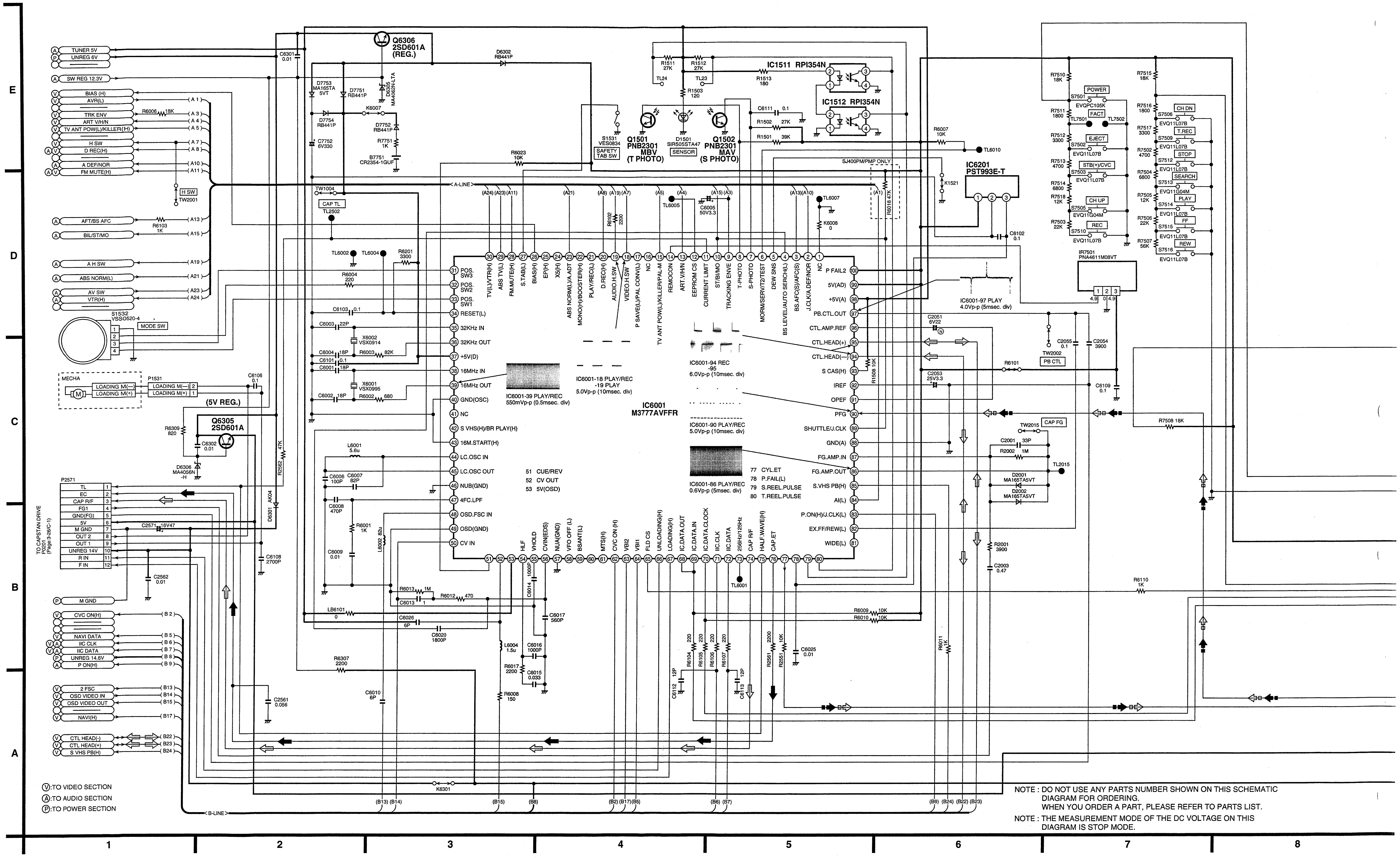
NOTE2: THE DC VOLTAGE INDICATED IN PRIMARY SIDE IS SHOWN THE VOLTAGE WHEN INPUT AC IS 240V.

NOTE: DO NOT USE ANY PARTS NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

3-6. SYSTEM CONTROL & SERVO/TIMER SECTION IN MAIN SCHEMATIC DIAGRAM

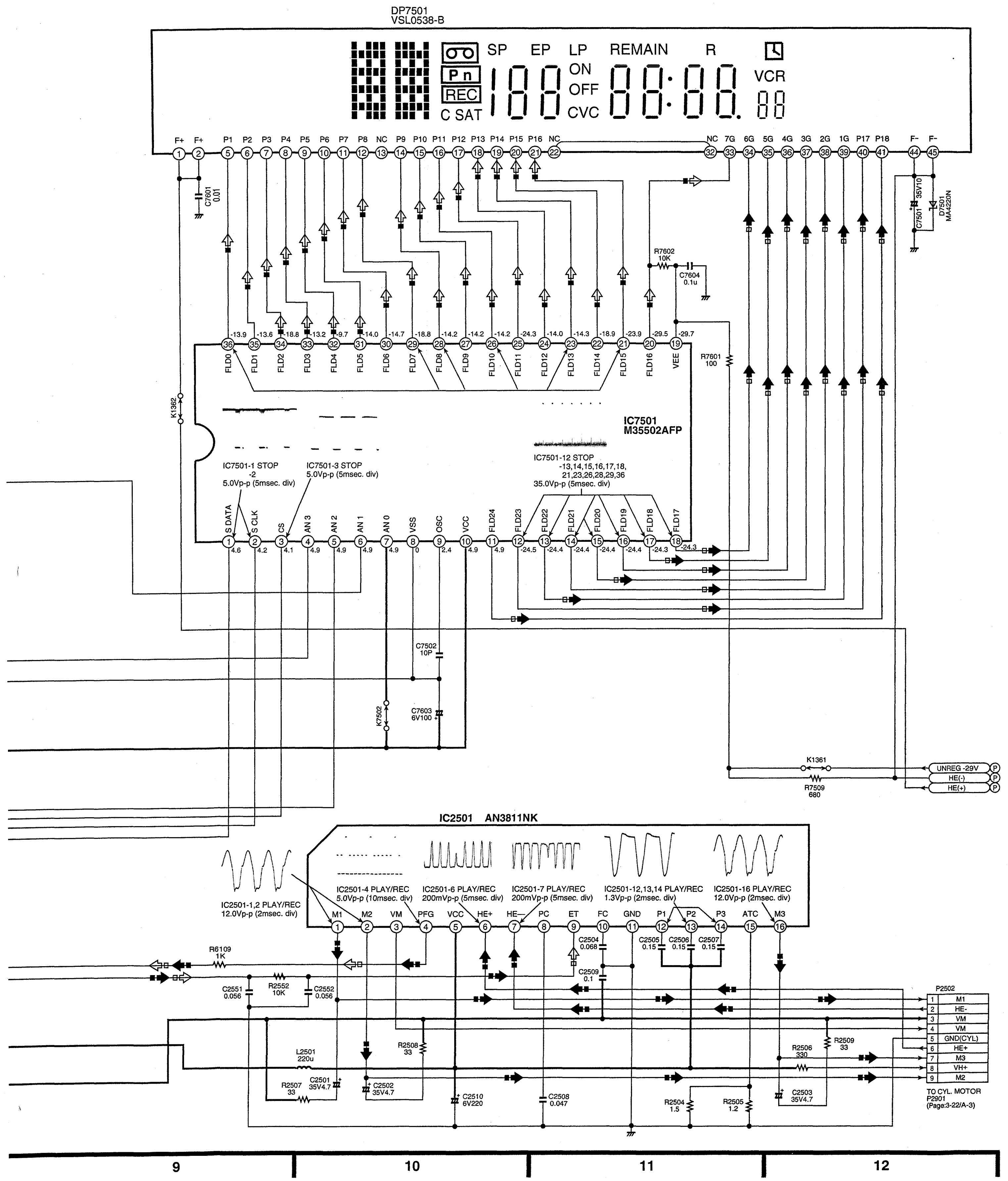
⇦ CAPSTAN SERVO PHASE LOOP ⇦□ CYLINDER SERVO PHASE LOOP ⬅ CAPSTAN SERVO SPEED LOOP ⬅■ CYLINDER SERVO SPEED LOOP ⇦■ GRID CONTROL SIGNAL ⬅□ SEGMENT CONTROL SIGNAL



E
D
C
B
A
1
2
3
4
5
6
7
8
TUNER 5V
UNREG 6V
SW REG 12.3V
BIAS (H)
AVR(L)
TRK ENV
ART V/H/N
TV ANT POW(L)/KILLER(H)
H SW
D REC(H)
A DEF/NOR
FM MUTE(H)
AFT/BS AFC
BIL/ST/MO
A H SW
ABS NORM(L)
AV SW
VTR(H)
S1532 VSSO520-4
MODE SW
MECHA
LOADING M(−)
LOADING M(+)
P1531
(5V REG.)
Q6305 2SD601A
Q6306 2SD601A (REG.)
D6302 RB441P
R6309 820
D6306 MA4056N-H
P2571
TL
EC
CAP R/F
FG1
GND(FG)
5V
M GND
OUT 2
OUT 1
UNREG 14V
R IN
F IN
TO CAPSTAN DRIVE P2001 (Page 3-26/C-1)
M GND
CVC ON(H)
NAVI DATA
IIC CLK
IIC DATA
UNREG 14.6V
P ON(H)
2 FSC
OSD VIDEO IN
OSD VIDEO OUT
NAVI(H)
CTL HEAD(-)
CTL HEAD(+)
S VHS PB(H)
H SW
TW2001
CAP TL
TL2502
TW1004
A-LINE
B-LINE
S1531 VES0834
SAFETY TAB SW
Q1501 PNB2301 MBV (T PHOTO)
D1501 SIR505STA47
SENSOR
Q1502 PNB2301 MAV (S PHOTO)
IC1511 RPI354N
IC1512 RPI354N
SJ400PM/PMP ONLY
IC6201 PST993E-T
K1521
IC6001 M3777AVFFR
IC6001-39 PLAY/REC 550mVp-p (0.5msec. div)
IC6001-18 PLAY/REC -19 PLAY 5.0Vp-p (10msec. div)
IC6001-94 REC -95 6.0Vp-p (10msec. div)
IC6001-90 PLAY/REC 5.0Vp-p (10msec. div)
IC6001-86 PLAY/REC 0.6Vp-p (5msec. div)
IC6001-97 PLAY 4.0Vp-p (5msec. div)
51 CUE/REV
52 CV OUT
53 5V(OSD)
77 CYL.ET
78 P.FAIL(L)
79 S.REEL.PULSE
80 T.REEL.PULSE
POS. SW3
POS. SW2
POS. SW1
RESET(L)
32KHz IN
32KHz OUT
+5V(D)
16MHz IN
16MHz OUT
GND(OSC)
NC
S VHS(H)/BR PLAY(H)
16M.START(H)
LC.OSC IN
LC.OSC OUT
NUB(GND)
4FC.LPF
OSD.FSC IN
OSD(GND)
CV IN
P FAIL2
5V(AD)
+5V(A)
PB.CTL.OUT
CTL.AMP.REF
CTL.HEAD(+)
CTL.HEAD(−)
S CAS(H)
IREF
OPEF
PFG
SHUTTLE/J.CLK
GND(A)
FG.AMP.IN
FG.AMP.OUT
S.VHS PB(H)
AI(L)
P.ON(H)/J.CLK(L)
EX.FF/REW(L)
WIDE(L)
POWER
FACT
EJECT
STB(+)/CVC
CH UP
REC
CH DN
T.REC
STOP
SEARCH
PLAY
FF
REW
IR7501 PNA4611M08VT
PB CTL
TW2002
CAP FG
TW2015
TL2015
D2001 MA165TA5VT
D2002 MA165TA5VT
R7508 18K
R6110 1K
K6301
Ⓥ:TO VIDEO SECTION
Ⓐ:TO AUDIO SECTION
Ⓟ:TO POWER SECTION

NOTE : DO NOT USE ANY PARTS NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING.
WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE : THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.


DP7501
VSL0538-B
SP EP LP REMAIN R
ON OFF CVC VCR
Pn REC C SAT
IC7501
M35502AFP
IC7501-1 STOP -2 5.0Vp-p (5msec. div)
IC7501-3 STOP 5.0Vp-p (5msec. div)
IC7501-12 STOP -13,14,15,16,17,18, 21,23,26,28,29,36 35.0Vp-p (5msec. div)
S DATA
S CLK
CS
AN 3
AN 2
AN 1
AN 0
VSS
OSC
VCC
FLD0
FLD1
VEE
R7601 100
R7602 10K
C7604 0.1u
C7601 0.01
C7502 10P
C7603 6V100
K1362
K7502
K1361
R7509 680
C7501 35V10
D7501 MA4220N
UNREG -29V
HE(-)
HE(+)
IC2501 AN3811NK
IC2501-1,2 PLAY/REC 12.0Vp-p (2msec. div)
IC2501-4 PLAY/REC 5.0Vp-p (10msec. div)
IC2501-6 PLAY/REC 200mVp-p (5msec. div)
IC2501-7 PLAY/REC 200mVp-p (5msec. div)
IC2501-12,13,14 PLAY/REC 1.3Vp-p (2msec. div)
IC2501-16 PLAY/REC 12.0Vp-p (2msec. div)
M1 M2 VM PFG VCC HE+ HE- PC ET FC GND P1 P2 P3 ATC M3
R6109 1K
C2551 0.056
R2552 10K
C2552 0.056
L2501 220u
R2507 33
C2501 35V4.7
C2502 35V4.7
R2508 33
C2510 6V220
C2508 0.047
C2504 0.068
C2509 0.1
C2505 0.15
C2506 0.15
C2507 0.15
R2504 1.5
R2505 1.2
R2506 330
R2509 33
C2503 35V4.7
P2502
1 M1
2 HE-
3 VM
4 VM
5 GND(CYL)
6 HE+
7 M3
8 VH+
9 M2
TO CYL. MOTOR P2901 (Page:3-22/A-3)
9
10
11
12

SYSTEM CONTROL & SERVO ICs DC VOLTAGE CHART (SP MODE)

REF. NO.	IC1511					IC1512														
MODE	1	2	3	4		1	2	3	4											
STOP	1.0	2.2	4.9	0		0	1.0	4.9	0											
PLAY	1.0	2.2	4.9	0		0	1.0	4.9	0											
REC	1.0	2.2	4.9	0		0	1.0	4.9	0											
F.F	1.0	2.2	2.4	0		0	1.0	2.8	0											
REW	1.0	2.2	2.4	0		0	1.0	2.8	0											

REF. NO.	IC2501																	IC6201		
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		1	2	3
STOP	14.3	14.3	14.6	1.1	4.9	1.0	1.1	0.5	2.3	1.3	0	3.8	3.8	3.8	0	14.3		4.9	0	4.9
PLAY	14.3	14.3	14.6	1.1	4.9	1.0	1.1	0.5	2.3	1.3	0	3.8	3.8	3.8	0	14.3		4.9	0	4.9
REC	14.3	14.3	14.6	1.1	4.9	1.0	1.1	0.5	2.3	1.3	0	3.8	3.8	3.8	0	14.3		4.9	0	4.9
F.F	14.3	14.3	14.6	1.1	4.9	1.0	1.1	0.5	2.3	1.3	0	3.8	3.8	3.8	0	14.3		4.9	0	4.9
REW	14.3	14.3	14.6	1.1	4.9	1.0	1.1	0.5	2.3	1.3	0	3.8	3.8	3.8	0	14.3		4.9	0	4.9

REF. NO.	IC6001																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STOP	0	1.7	4.5	0	0	4.9	4.9	4.7	0	0	0	4.9	0	4.9	0	0	4.9	4.4	0	0
PLAY	0	1.7	4.5	0	0	4.9	4.9	4.7	3.9	0	4.6	4.9	0	4.9	0	0	4.9	4.4	4.8	0
REC	0	1.7	4.5	0	0	4.9	4.9	4.7	0	0	4.6	4.9	0	4.9	0	0	4.9	4.4	0	4.8
F.F	0	1.7	4.5	0	0	4.9	4.9	4.7	0	0	4.6	4.9	0	4.9	0	0	4.9	1.8	0	0
REW	0	1.7	4.5	0	0	4.9	4.9	4.7	0	0	4.6	4.9	0	4.9	0	0	4.9	2.7	0	0

REF. NO.	IC6001																			
MODE	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
STOP	0	0	4.2	0	0	0	0	0	4.9	4.9	4.9	0	0	4.9	1.5	1.5	4.9	2.1	2.1	0
PLAY	0	0	4.2	0	0	0	0	0	4.9	4.9	4.9	0	0	4.9	1.5	1.5	4.9	-	-	0
REC	0	0	4.2	0	0	4.8	0	0	4.9	4.9	4.9	0	0	4.9	1.5	1.5	4.9	-	-	0
F.F	0	0	4.2	0	0	0	0	0	4.9	4.9	4.9	4.9	0	4.9	1.5	1.5	4.9	-	-	0
REW	0	0	4.2	0	0	0	0	0	4.9	4.9	4.9	4.9	0	4.9	1.5	1.5	4.9	-	-	0

REF. NO.	IC6001																			
MODE	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
STOP	0	0	0	4.9	4.9	0	1.2	2.1	0	2.3	4.9	2.3	4.9	1.9	1.5	1.9	0	0	0	0
PLAY	0	0	0	4.9	4.9	0	1.2	2.1	0	2.3	4.9	2.3	4.9	1.9	1.5	1.9	0	0	0	0
REC	0	0	0	0	0	0	1.2	2.1	0	2.3	4.9	2.3	4.9	1.9	1.5	1.9	0	0	0	0
F.F	0	0	0	4.9	4.9	0	1.2	2.1	0	2.3	4.9	2.3	4.9	1.9	1.5	1.9	0	0	0	0
REW	0	0	0	4.9	4.9	0	1.2	2.1	0	2.3	4.9	2.3	4.9	1.9	1.5	1.9	0	0	0	0

REF. NO.	IC6001																			
MODE	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
STOP	4.9	4.9	0	0	3.4	0	0	4.1	4.4	4.0	3.7	3.5	2.3	0	0	0	2.3	4.8	0.1	0.1
PLAY	4.9	4.9	0	0	3.4	0	0	4.1	4.4	4.0	3.7	3.5	2.3	0	0	2.4	2.3	4.8	5.0	5.0
REC	4.9	4.9	0	0	3.4	0	0	4.1	4.4	4.0	3.7	3.5	2.3	0	0	2.4	2.3	4.8	5.0	5.0
F.F	4.9	4.9	0	0	3.4	0	0	4.1	4.4	4.0	3.7	3.5	2.3	0	4.5	2.9	2.3	4.8	2.6	5.0
REW	4.9	4.9	0	0	3.4	0	0	4.1	4.4	4.0	3.7	3.5	2.3	4.9	4.5	2.9	2.3	4.8	2.3	2.8

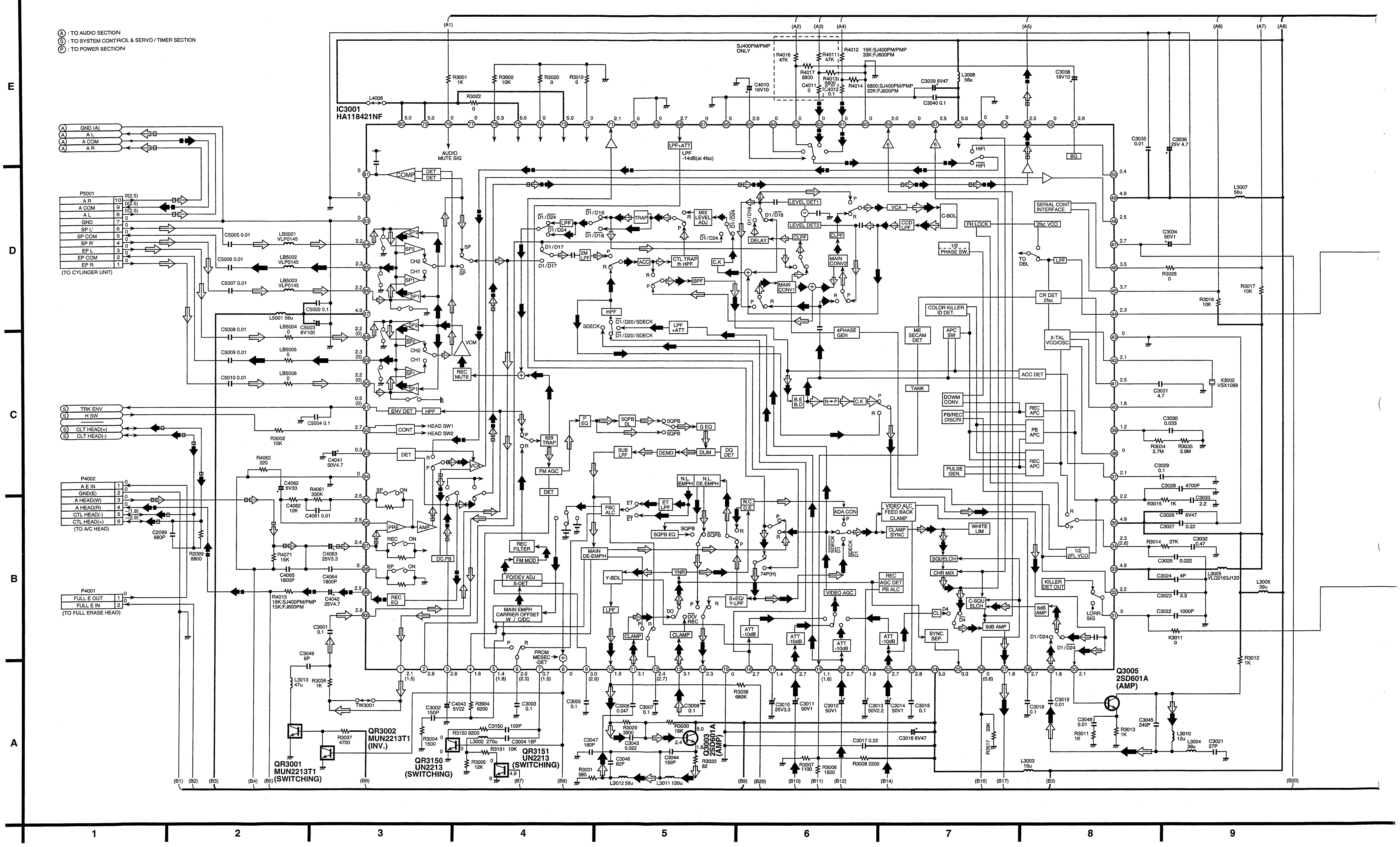
REF. NO.	IC6001																			
MODE	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
STOP	0	0	4.9	1.6	0	2.4	2.4	0	0	1.1	0	2.4	4.9	2.4	2.4	2.4	2.4	4.9	4.9	4.9
PLAY	0	0	4.9	1.6	0	2.4	-	0	0	1.1	2.4	2.4	4.9	-	-	2.4	2.4	4.9	4.9	4.9
REC	0	0	4.9	1.6	0	2.4	-	0	0	1.1	2.4	2.4	4.9	3.1	3.5	2.4	2.4	4.9	4.9	4.9
F.F	0	1.5	4.9	1.6	0	2.4	-	0	0	1.1	2.4	2.4	4.9	2.4	2.4	2.4	2.4	4.9	4.9	4.9
REW	0	1.5	4.9	1.6	0	2.4	-	0	0	1.1	2.4	2.4	4.9	2.4	2.4	2.4	2.4	4.9	4.9	4.9

SYSTEM CONTROL & SERVO TRANSISTORs DC VOLTAGE CHART (SP MODE)

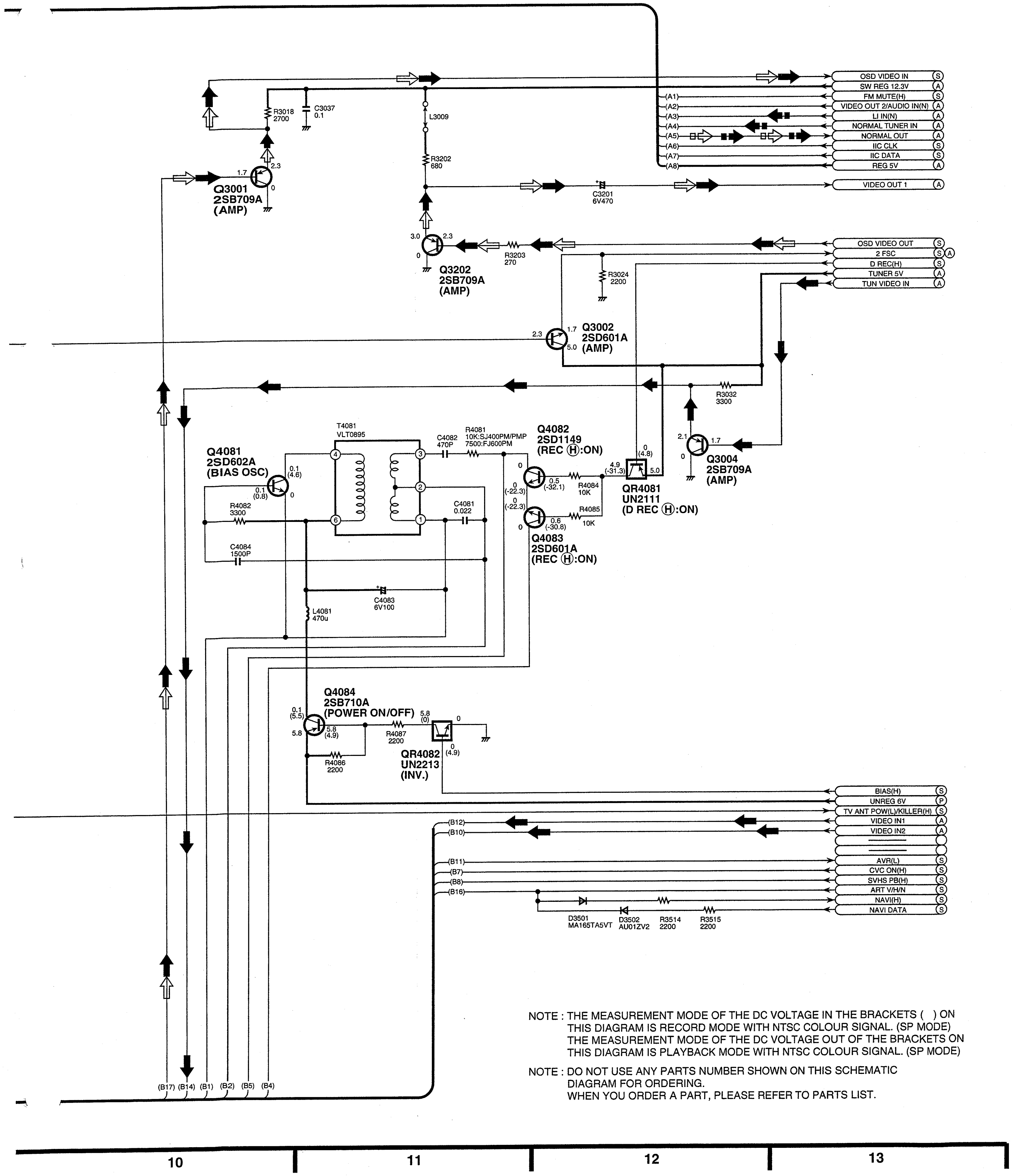
REF. NO.	Q1501			Q1502			Q6305			Q6306										
MODE	+	-		+	-		E	C	B	E	C	B								
STOP	4.8	0		4.9	0		5.0	5.7	5.7	5.2	5.7	6.0								
PLAY	4.8	0		4.9	0		5.0	5.7	5.7	5.2	5.7	6.0								
REC	4.8	0		4.9	0		5.0	5.7	5.7	5.2	5.7	6.0								
F.F	4.8	0		4.9	0		5.0	6.1	5.7	5.2	6.1	6.0								
REW	4.8	0		4.9	0		5.0	6.1	5.7	5.2	6.1	6.0								

3-7. VIDEO SECTION IN MAIN SCHEMATIC DIAGRAM

⬅ VIDEO MAIN SIGNAL PATH IN REC MODE ⇦ VIDEO MAIN SIGNAL PATH IN PLAYBACK MODE ⬅ AUDIO MAIN SIGNAL PATH IN REC MODE ⇦ AUDIO MAIN SIGNAL PATH IN PLAYBACK MODE ⬅ CAPSTAN SERVO SPEED LOOP



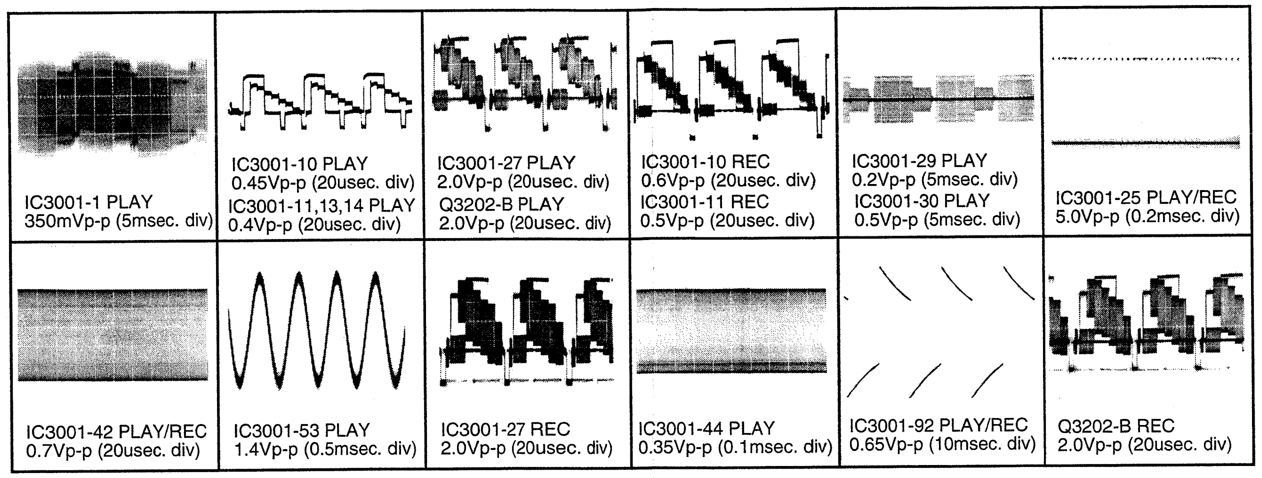
Ⓐ : TO AUDIO SECTION
Ⓢ : TO SYSTEM CONTROL & SERVO / TIMER SECTION
Ⓟ : TO POWER SECTION
IC3001
HA118421NF
P5001
(TO CYLINDER UNIT)
P4002
(TO A/C HEAD)
P4001
(TO FULL ERASE HEAD)
SJ400PM/PMP ONLY
Q3005
2SD601A
(AMP)
Q3003
2SD601A
(AMP)
QR3001
MUN2213T1
(SWITCHING)
QR3002
MUN2213T1
(INV.)
QR3150
UN2213
(SWITCHING)
QR3151
UN2213
(SWITCHING)
E
D
C
B
A
1
2
3
4
5
6
7
8
9


OSD VIDEO IN (S)
SW REG 12.3V (A)
(A1) FM MUTE(H) (S)
(A2) VIDEO OUT 2/AUDIO IN(N) (A)
(A3) LI IN(N) (A)
(A4) NORMAL TUNER IN (A)
(A5) NORMAL OUT (A)
(A6) IIC CLK (S)
(A7) IIC DATA (S)
(A8) REG 5V (A)
VIDEO OUT 1 (A)
OSD VIDEO OUT (S)
2 FSC (S)(A)
D REC(H) (S)
TUNER 5V (A)
TUN VIDEO IN (A)
R3018 2700
C3037 0.1
L3009
R3202 680
C3201 6V470
Q3001 2SB709A (AMP)
1.7
2.3
0
Q3202 2SB709A (AMP)
3.0
2.3
0
R3203 270
R3024 2200
Q3002 2SD601A (AMP)
2.3
1.7
5.0
R3032 3300
Q3004 2SB709A (AMP)
2.1
1.7
0
T4081 VLT0895
C4082 470P
R4081 10K:SJ400PM/PMP 7500:FJ600PM
Q4082 2SD1149 (REC Ⓗ:ON)
Q4081 2SD602A (BIAS OSC)
0.1 (4.6)
0.1 (0.8)
0
R4082 3300
C4084 1500P
C4081 0.022
C4083 6V100
L4081 470u
0
0.5 (-32.1)
0 (-22.3)
0 (-22.3)
0.6 (-30.8)
0
R4084 10K
R4085 10K
4.9 (-31.3)
0 (4.8)
5.0
QR4081 UN2111 (D REC Ⓗ:ON)
Q4083 2SD601A (REC Ⓗ:ON)
Q4084 2SB710A (POWER ON/OFF)
0.1 (5.5)
5.8
5.8 (4.9)
5.8 (0)
0
0 (4.9)
R4087 2200
R4086 2200
QR4082 UN2213 (INV.)
BIAS(H) (S)
UNREG 6V (P)
TV ANT POW(L)/KILLER(H) (S)
(B12) VIDEO IN1 (A)
(B10) VIDEO IN2 (A)
(B11) AVR(L) (S)
(B7) CVC ON(H) (S)
(B8) SVHS PB(H) (S)
(B16) ART V/H/N (S)
NAVI(H) (S)
NAVI DATA (S)
D3501 MA165TA5VT
D3502 AU01ZV2
R3514 2200
R3515 2200
(B17) (B14) (B1) (B2) (B5) (B4)
10
11
12
13

NOTE : THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE WITH NTSC COLOUR SIGNAL. (SP MODE) THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH NTSC COLOUR SIGNAL. (SP MODE)

NOTE : DO NOT USE ANY PARTS NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING.
WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

VIDEO SECTION IN MAIN WAVEFORM CHART(SP MODE)



IC3001-1 PLAY
350mVp-p (5msec. div)

IC3001-10 PLAY
0.45Vp-p (20usec. div)
IC3001-11,13,14 PLAY
0.4Vp-p (20usec. div)

IC3001-27 PLAY
2.0Vp-p (20usec. div)
Q3202-B PLAY
2.0Vp-p (20usec. div)

IC3001-10 REC
0.6Vp-p (20usec. div)
IC3001-11 REC
0.5Vp-p (20usec. div)

IC3001-29 PLAY
0.2Vp-p (5msec. div)
IC3001-30 PLAY
0.5Vp-p (5msec. div)

IC3001-25 PLAY/REC
5.0Vp-p (0.2msec. div)

IC3001-42 PLAY/REC
0.7Vp-p (20usec. div)

IC3001-53 PLAY
1.4Vp-p (0.5msec. div)

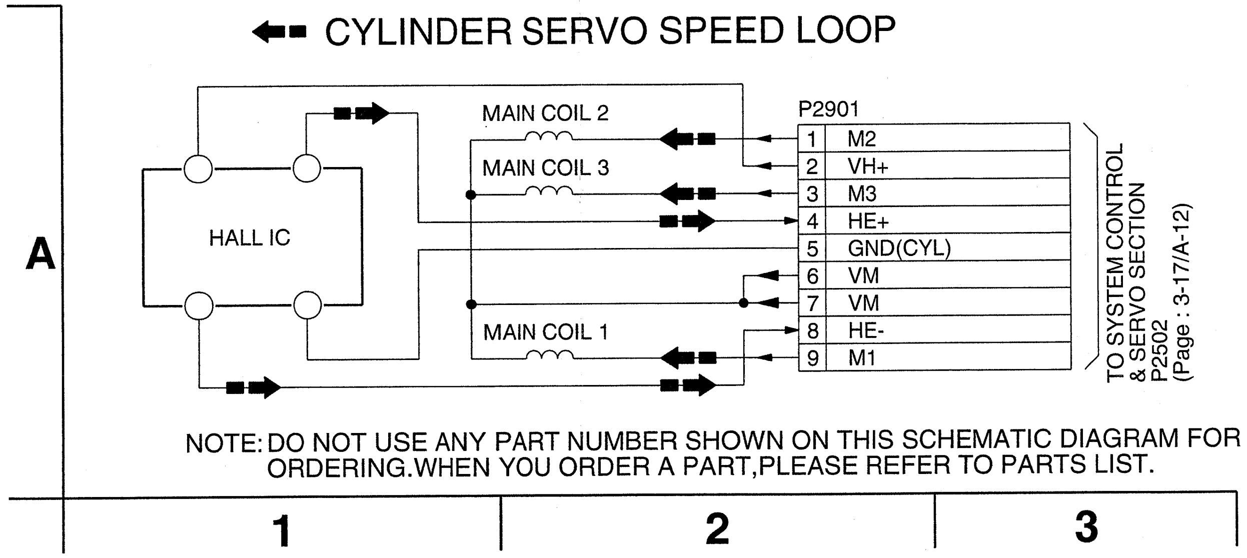
IC3001-27 REC
2.0Vp-p (20usec. div)

IC3001-44 PLAY
0.35Vp-p (0.1msec. div)

IC3001-92 PLAY/REC
0.65Vp-p (10msec. div)

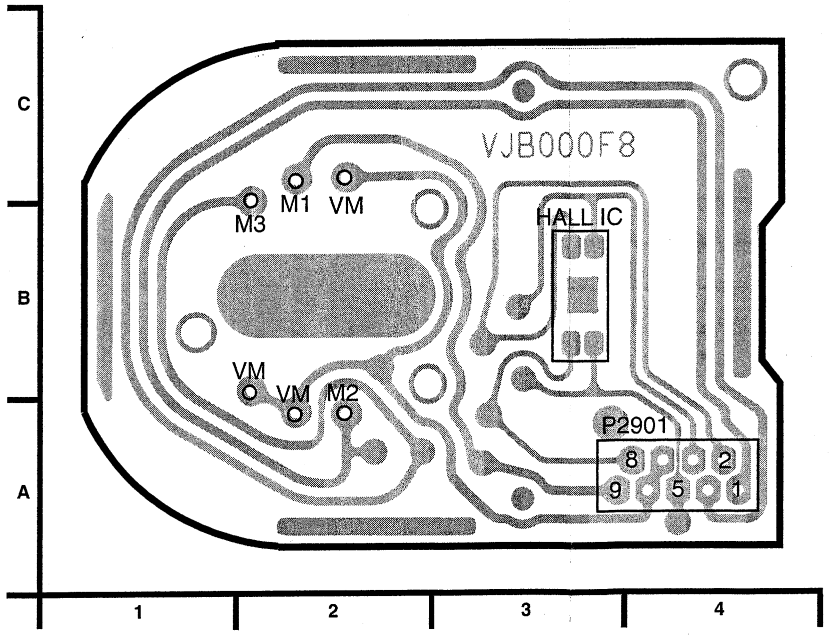
Q3202-B REC
2.0Vp-p (20usec. div)

3-8. CYLINDER MOTOR UNIT SCHEMATIC DIAGRAM


◀■ CYLINDER SERVO SPEED LOOP
A
HALL IC
MAIN COIL 2
MAIN COIL 3
MAIN COIL 1
P2901
1 M2
2 VH+
3 M3
4 HE+
5 GND(CYL)
6 VM
7 VM
8 HE-
9 M1
TO SYSTEM CONTROL & SERVO SECTION P2502 (Page : 3-17/A-12)
1
2
3

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING.WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.

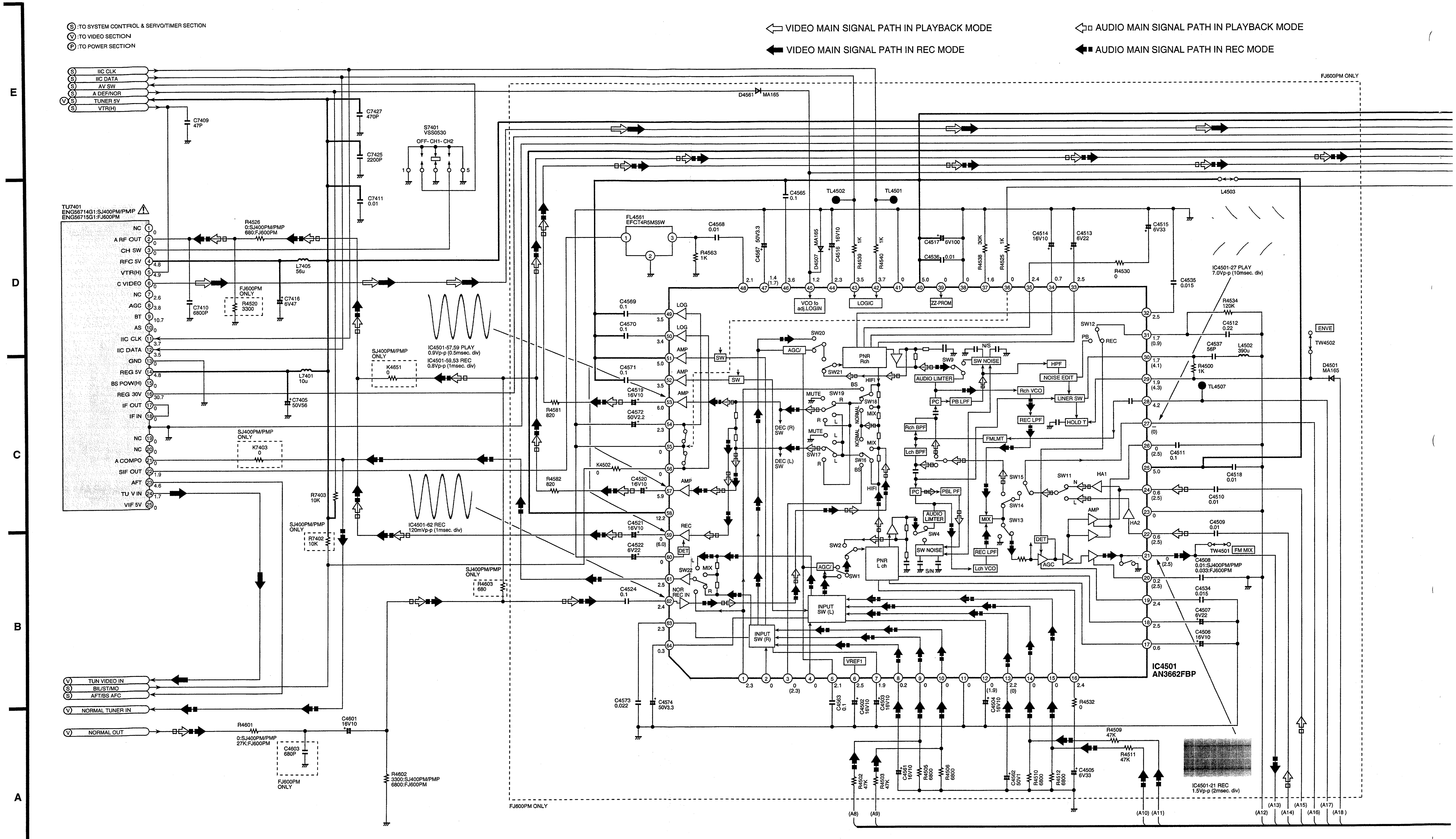
3-9. CYLINDER MOTOR UNIT C.B.A.


VJB000F8
M1
VM
M3
HALL IC
VM
VM
M2
P2901
8
2
9
5
1
C
B
A
1
2
3
4

CYLINDER MOTOR UNIT	
Integrated Circuit	
HALL IC	B-3
Connector	
P2901	A-4

ADDRESS INFORMATION

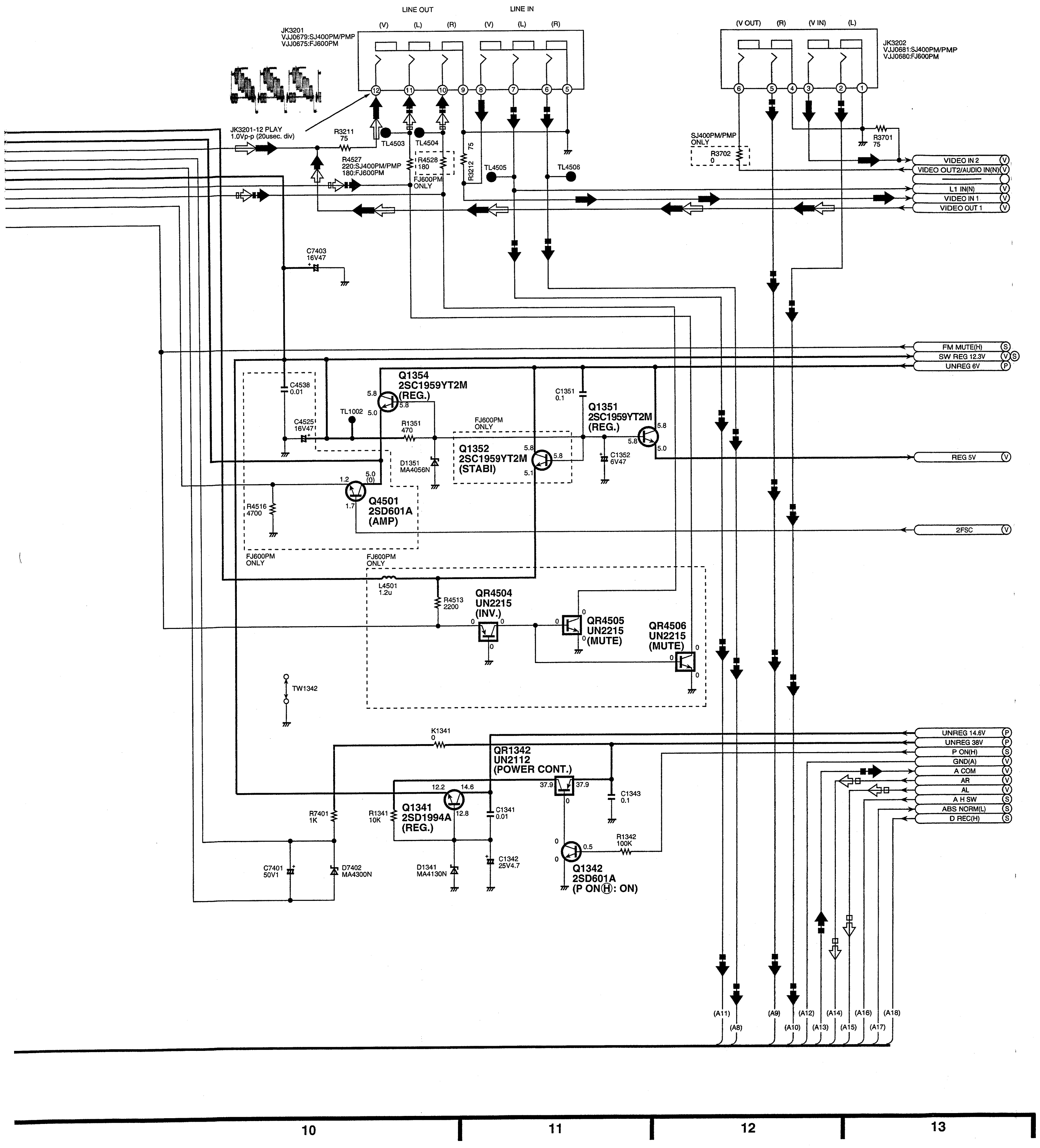
3-10. AUDIO SECTION IN MAIN SCHEMATIC DIAGRAM


Ⓢ:TO SYSTEM CONTROL & SERVO/TIMER SECTION
Ⓥ:TO VIDEO SECTION
Ⓟ:TO POWER SECTION
VIDEO MAIN SIGNAL PATH IN PLAYBACK MODE
VIDEO MAIN SIGNAL PATH IN REC MODE
AUDIO MAIN SIGNAL PATH IN PLAYBACK MODE
AUDIO MAIN SIGNAL PATH IN REC MODE
FJ600PM ONLY
IIC CLK
IIC DATA
AV SW
A DEF/NOR
TUNER 5V
VTR(H)
C7409 47P
C7427 470P
C7425 2200P
C7411 0.01
S7401 VSS0530
OFF- CH1- CH2
TU7401
ENG56714G1:SJ400PM/PMP
ENG56715G1:FJ600PM
NC
A RF OUT
CH SW
RFC 5V
VTR(H)
C VIDEO
NC
AGC
BT
AS
IIC CLK
IIC DATA
GND
REG 5V
BS POW(H)
REG 30V
IF OUT
IF IN
NC
NC
A COMPO
SIF OUT
AFT
TU V IN
VIF 5V
R4526 0:SJ400PM/PMP 680:FJ600PM
L7405 56u
FJ600PM ONLY
R4520 3300
C7416 6V47
C7410 6800P
SJ400PM/PMP ONLY
K4651 0
L7401 10u
C7405 50V56
SJ400PM/PMP ONLY
K7403 0
R7403 10K
SJ400PM/PMP ONLY
R7402 10K
IC4501-57,59 PLAY 0.9Vp-p (0.5msec. div)
IC4501-59,53 REC 0.8Vp-p (1msec. div)
IC4501-62 REC 120mVp-p (1msec. div)
SJ400PM/PMP ONLY
R4603 680
D4561 MA165
FL4561 EFCT4R5MS5W
C4568 0.01
R4563 1K
C4565 0.1
TL4502
TL4501
C4567 50V3.3
D4507 MA165
C4516 16V10
R4539 1K
R4540 1K
C4517 6V100
C4536 0.01
R4538 30K
R4525 1K
C4514 16V10
C4513 6V22
C4515 6V33
R4530 0
C4535 0.015
L4503
IC4501-27 PLAY 7.0Vp-p (10msec. div)
VCO fo adj.LOGIN
LOGIC
ZZ-PROM
C4569 0.1
C4570 0.1
C4571 0.1
C4519 16V10
C4572 50V2.2
R4581 820
K4502 0
R4582 820
C4520 16V10
C4521 16V10
C4522 6V22
C4524 0.1
LOG
AMP
SW
REC
DET
SW22
MIX
NOR REC IN
AGC/
SW20
SW21
PNR Rch
HIFI
BS
MUTE
SW19
SW18
NORMAL
DEC (R) SW
DEC (L) SW
SW17
SW16
SW9
SW NOISE
AUDIO LIMTER
HPF
NOISE EDIT
Rch VCO
LINER SW
PC
PB LPF
REC LPF
HOLD T
Rch BPF
FMLMT
Lch BPF
PBL PF
AUDIO LIMTER
SW4
SW NOISE
REC LPF
Lch VCO
PNR L ch
SW2
SW1
SW15
SW14
SW13
MIX
DET
AGC
SW11
HA1
HA2
SW12
PB
REC
R4534 120K
C4512 0.22
C4537 56P
L4502 390u
R4500 1K
TL4507
ENVE
TW4502
D4501 MA165
C4511 0.1
C4518 0.01
C4510 0.01
C4509 0.01
TW4501
FM MIX
C4508 0.01:SJ400PM/PMP 0.033:FJ600PM
C4534 0.015
C4507 6V22
C4506 16V10
IC4501 AN3662FBP
INPUT SW (L)
INPUT SW (R)
VREF1
C4573 0.022
C4574 50V3.3
C4563 0.1
C4502 16V10
C4503 16V10
C4504 16V10
R4532 0
R4509 47K
R4511 47K
R4502 47K
R4503 47K
C4501 16V10
R4505 6800
R4506 6800
C4562 50V1
R4510 6800
R4512 6800
C4505 6V33
IC4501-21 REC 1.5Vp-p (2msec. div)
TUN VIDEO IN
BIL/ST/MO
AFT/BS AFC
NORMAL TUNER IN
NORMAL OUT
R4601 0:SJ400PM/PMP 27K:FJ600PM
C4601 16V10
C4603 680P
FJ600PM ONLY
R4602 3300:SJ400PM/PMP 6800:FJ600PM
(A8)
(A9)
(A10)
(A11)
(A12)
(A13)
(A14)
(A15)
(A16)
(A17)
(A18)
E
D
C
B
A
1
2
3
4
5
6
7
8
9

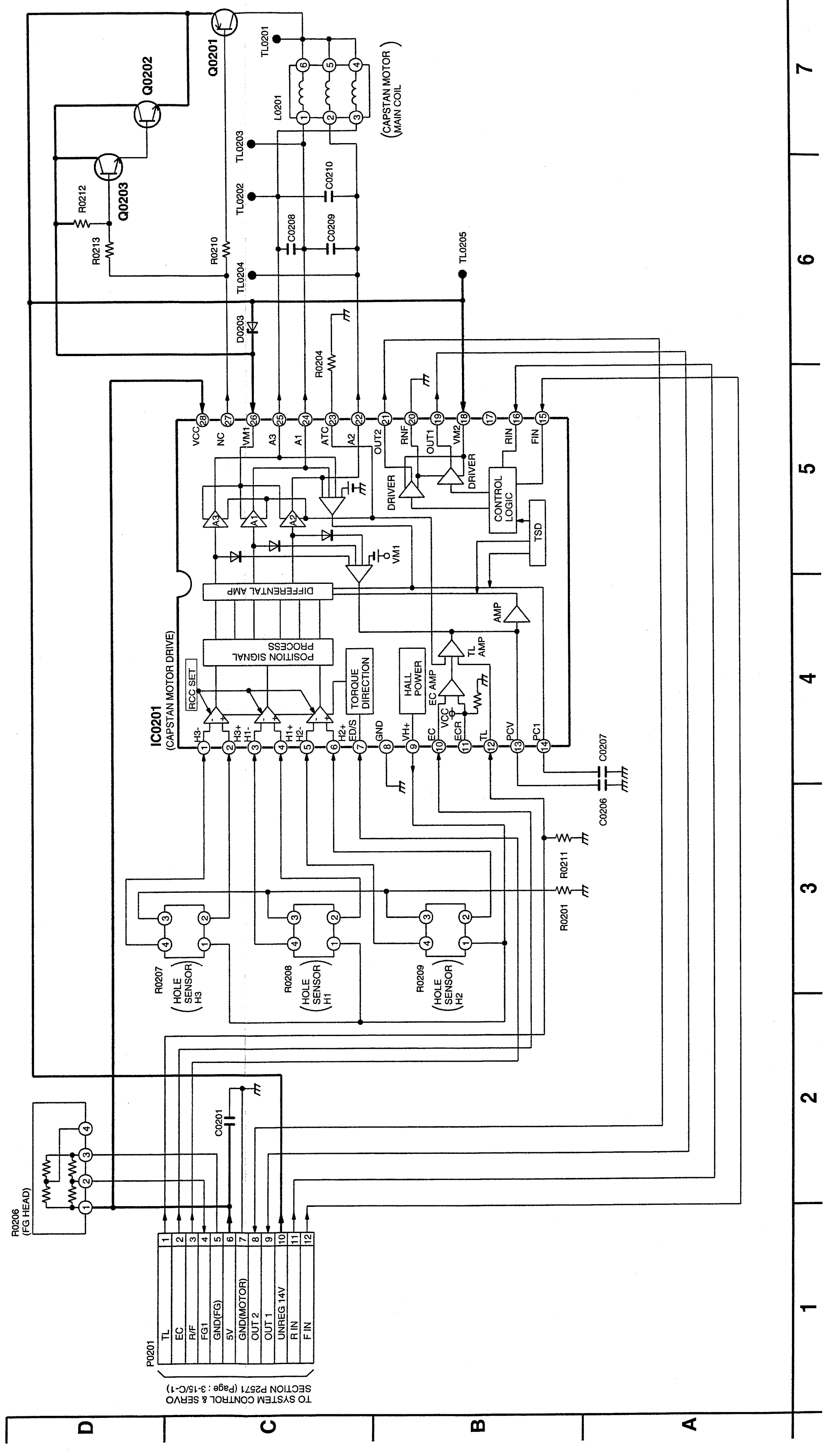
IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS USE ONLY THE SAME TYPE.

NOTE : DO NOT USE ANY PARTS NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE : THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE WITH NTSC COLOUR SIGNAL. (SP MODE)
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH NTSC COLOUR SIGNAL. (SP MODE)


LINE OUT
LINE IN
(V) (L) (R) (V) (L) (R)
JK3201
VJJ0679:SJ400PM/PMP
VJJ0675:FJ600PM
JK3201-12 PLAY
1.0Vp-p (20usec. div)
R3211
75
TL4503
TL4504
R4527
220:SJ400PM/PMP
180:FJ600PM
R4528
180
FJ600PM
ONLY
R3212
75
TL4505
TL4506
(V OUT) (R) (V IN) (L)
JK3202
VJJ0681:SJ400PM/PMP
VJJ0680:FJ600PM
SJ400PM/PMP
ONLY
R3702
0
R3701
75
VIDEO IN 2
VIDEO OUT2/AUDIO IN(N)
L1 IN(N)
VIDEO IN 1
VIDEO OUT 1
C7403
16V47
FM MUTE(H)
SW REG 12.3V
UNREG 6V
C4538
0.01
C4525
16V47
TL1002
Q1354
2SC1959YT2M
(REG.)
R1351
470
D1351
MA4056N
C1351
0.1
FJ600PM
ONLY
Q1352
2SC1959YT2M
(STABI)
Q1351
2SC1959YT2M
(REG.)
C1352
6V47
REG 5V
R4516
4700
Q4501
2SD601A
(AMP)
2FSC
FJ600PM
ONLY
L4501
1.2u
R4513
2200
QR4504
UN2215
(INV.)
QR4505
UN2215
(MUTE)
QR4506
UN2215
(MUTE)
TW1342
K1341
0
QR1342
UN2112
(POWER CONT.)
C1343
0.1
R7401
1K
R1341
10K
Q1341
2SD1994A
(REG.)
C1341
0.01
R1342
100K
Q1342
2SD601A
(P ON(H): ON)
C7401
50V1
D7402
MA4300N
D1341
MA4130N
C1342
25V4.7
UNREG 14.6V
UNREG 38V
P ON(H)
GND(A)
A COM
AR
AL
A H SW
ABS NORM(L)
D REC(H)
(A11) (A8) (A9) (A10) (A12) (A13) (A14) (A15) (A16) (A17) (A18)
10
11
12
13

3-11. CAPSTAN DRIVE UNIT SCHEMATIC DIAGRAM


Q0201
Q0202
Q0203
R0212
R0213
TL0201
L0201
(CAPSTAN MOTOR)
(MAIN COIL)
TL0203
TL0202
C0210
C0208
C0209
R0210
TL0204
TL0205
D0203
R0204
IC0201
(CAPSTAN MOTOR DRIVE)
VCC
NC
VM1
A3
A1
ATC
A2
OUT2
RNF
OUT1
VM2
RIN
FIN
DRIVER
DRIVER
CONTROL
LOGIC
TSD
DIFFERENTAL AMP
AMP
POSITION SIGNAL
PROCESS
RCC SET
TORQUE
DIRECTION
HALL
POWER
EC AMP
TL
AMP
H3-
H3+
H1-
H1+
H2-
H2+
ED/S
GND
VH+
EC
VCC
ECR
TL
PCV
PC1
C0207
C0206
R0211
R0201
R0207
(HOLE SENSOR H3)
R0208
(HOLE SENSOR H1)
R0209
(HOLE SENSOR H2)
R0206
(FG HEAD)
C0201
P0201
1 TL
2 EC
3 R/F
4 FG1
5 GND(FG)
6 5V
7 GND(MOTOR)
8 OUT 2
9 OUT 1
10 UNREG 14V
11 R IN
12 F IN
TO SYSTEM CONTROL & SERVO
SECTION P2571 (Page : 3-15/C-1)
D
C
B
A
1
2
3
4
5
6
7

3-12. MAIN C.B.A.

MAIN C.B.A.			
Transistor		Test Land	
Q1150	C-3	TL23	D-4
Q1151	D-3	TL24	C-6
Q1152	D-3	TL1002	B-7
Q1153	C-3	TL2015	C-4
Q1200	C-3	TL2502	B-4
Q1341	B-3	TL4501	C-7
Q1342	B-3	TL4502	C-7
Q1351	B-7	TL4503	F-4
Q1352	B-7	TL4504	F-4
Q1354	B-7	TL4505	F-4
Q1501	C-4	TL4506	F-5
Q1502	C-8	TL4507	E-7
Q3001	D-5	TL6001	C-5
Q3002	D-6	TL6002	B-4
Q3003	E-5	TL6003	F-7
Q3004	B-8	TL6004	B-5
Q3005	D-5	TL6005	B-4
Q3202	F-5	TL6007	C-4
Q4081	C-8	TL6010	B-4
Q4082	E-6	TL7501	A-4
Q4083	E-6	TL7502	A-4
Q4084	C-7	Test Wire	
Q4501	C-6	TW1004	A-3
Q6305	E-4	TW1342	E-3
Q6306	A-4	TW2001	E-3
Transistor & Resistor		TW2002	D-3
QR1342	B-3	TW2015	D-4
QR3001	E-5	TW3001	E-4
QR3002	E-5	TW4501	F-7
QR3150	E-5	TW4502	F-7
QR3151	E-5	Connector	
QR4081	E-6	P1102	F-3
QR4082	C-7	P1531	E-5
QR4504	D-7	P2502	E-3
QR4505	D-7	P2571	C-4
QR4506	D-7	P4001	D-7
Integrated Circuit		P4002	F-6
IC1200	A-3	P5001	E-6
IC1511	B-5		
IC1512	B-6		
IC2501	E-4		
IC3001	D-6		
IC4501	E-7		
IC6001	C-4		
IC6201	B-5		
IC7501	A-6		

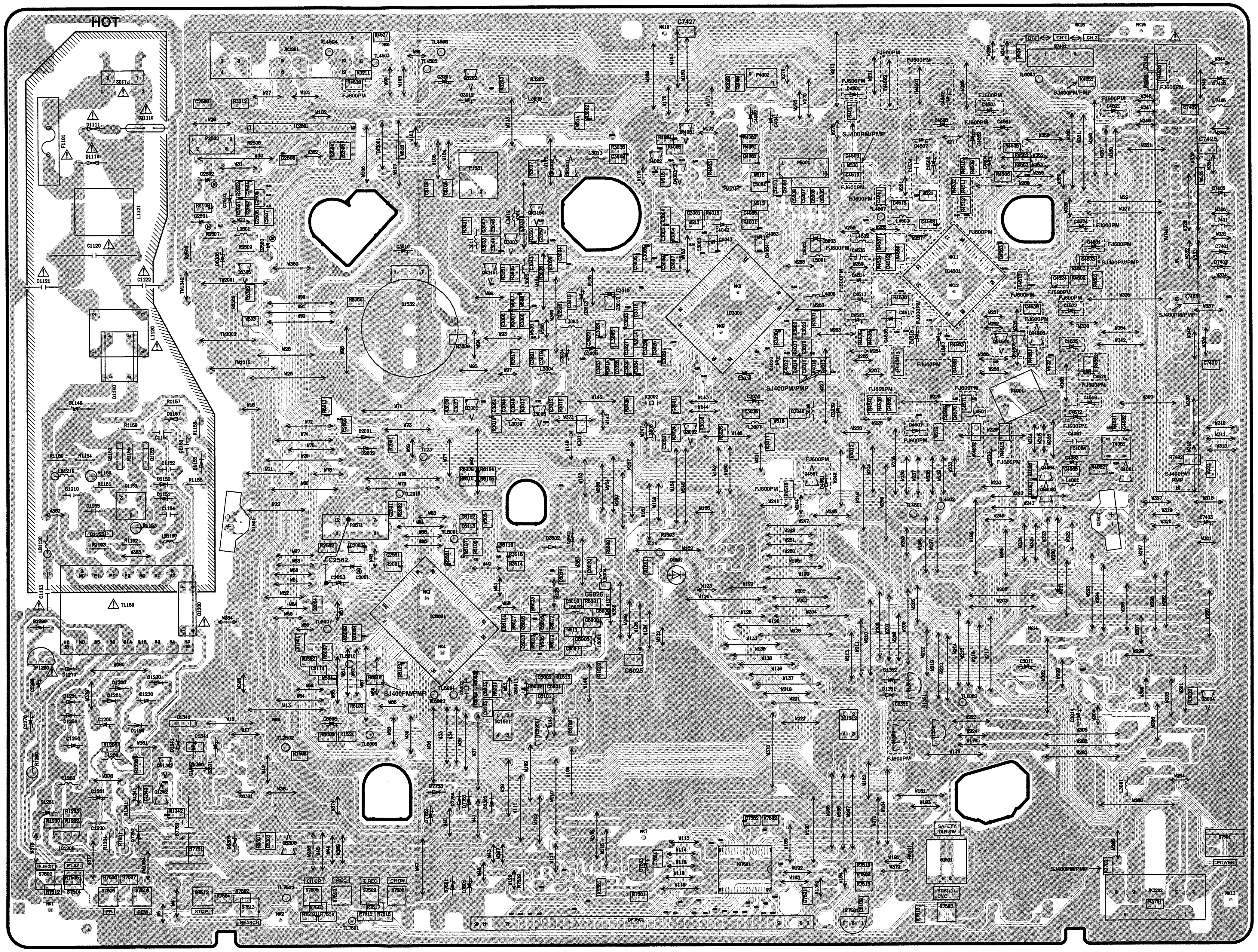
ADDRESS INFORMATION

CAUTION

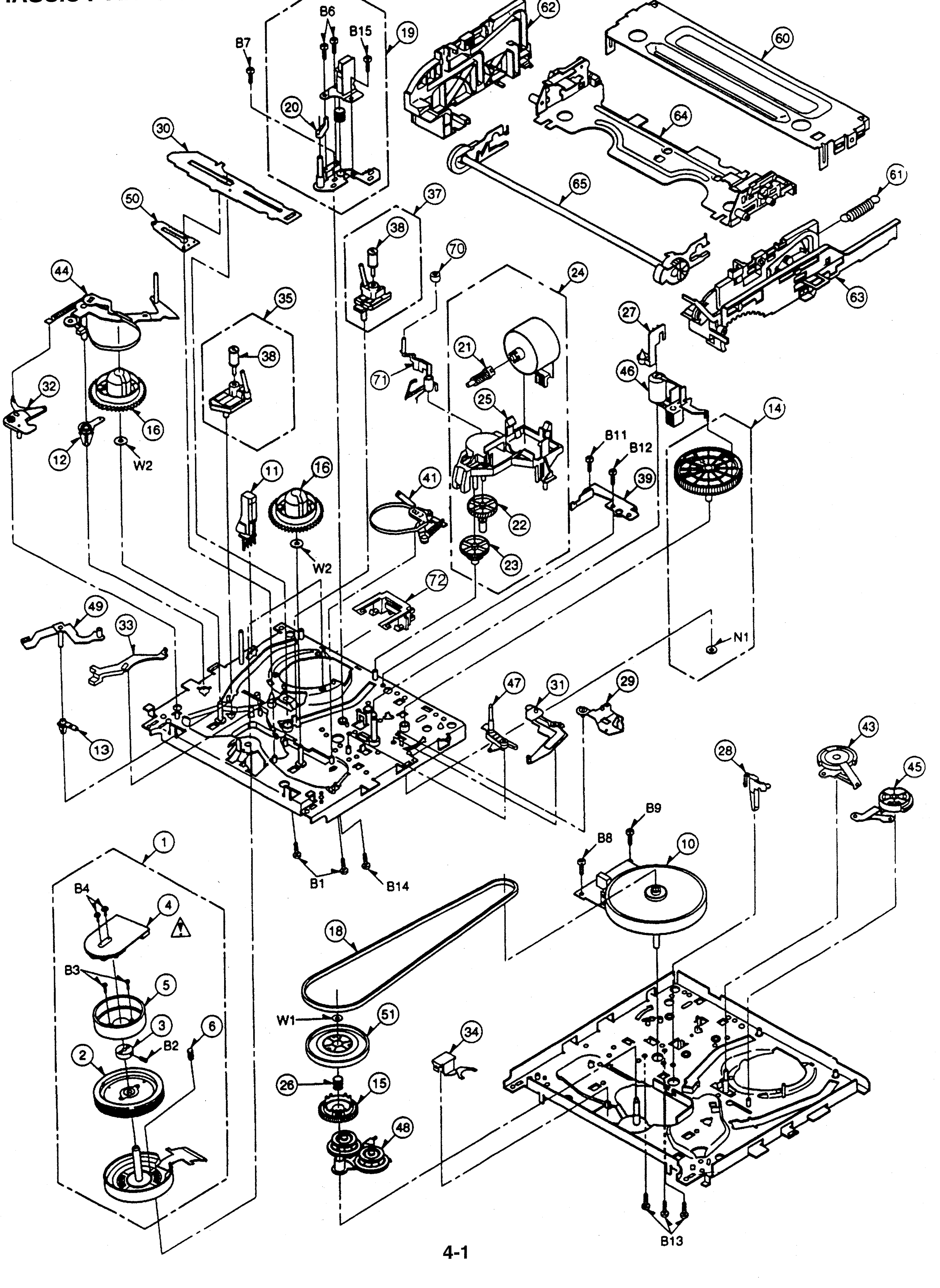
THE ▨ MARK INDICATES THE PRIMARY CIRCUIT TO DISTINGUISH THE PRIMARY FROM THE SECONDARY CIRCUIT. PAY ATTENTION NOT TO RECEIVE AN ELECTRIC SHOCK DURING REPAIR AND SERVICE OF THE PRODUCTS.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

(VEP06D56E : NV-SJ400PM) (VEP06D56F : NV-SJ400PMP) (VEP06D56M : NV-FJ600PM)



SECTION 4
EXPLODED VIEWS & PARTS LIST
4-1. EXPLODED VIEW MECHANICAL REPLACEMENT PARTS LIST
1. CHASSIS PARTS SECTION

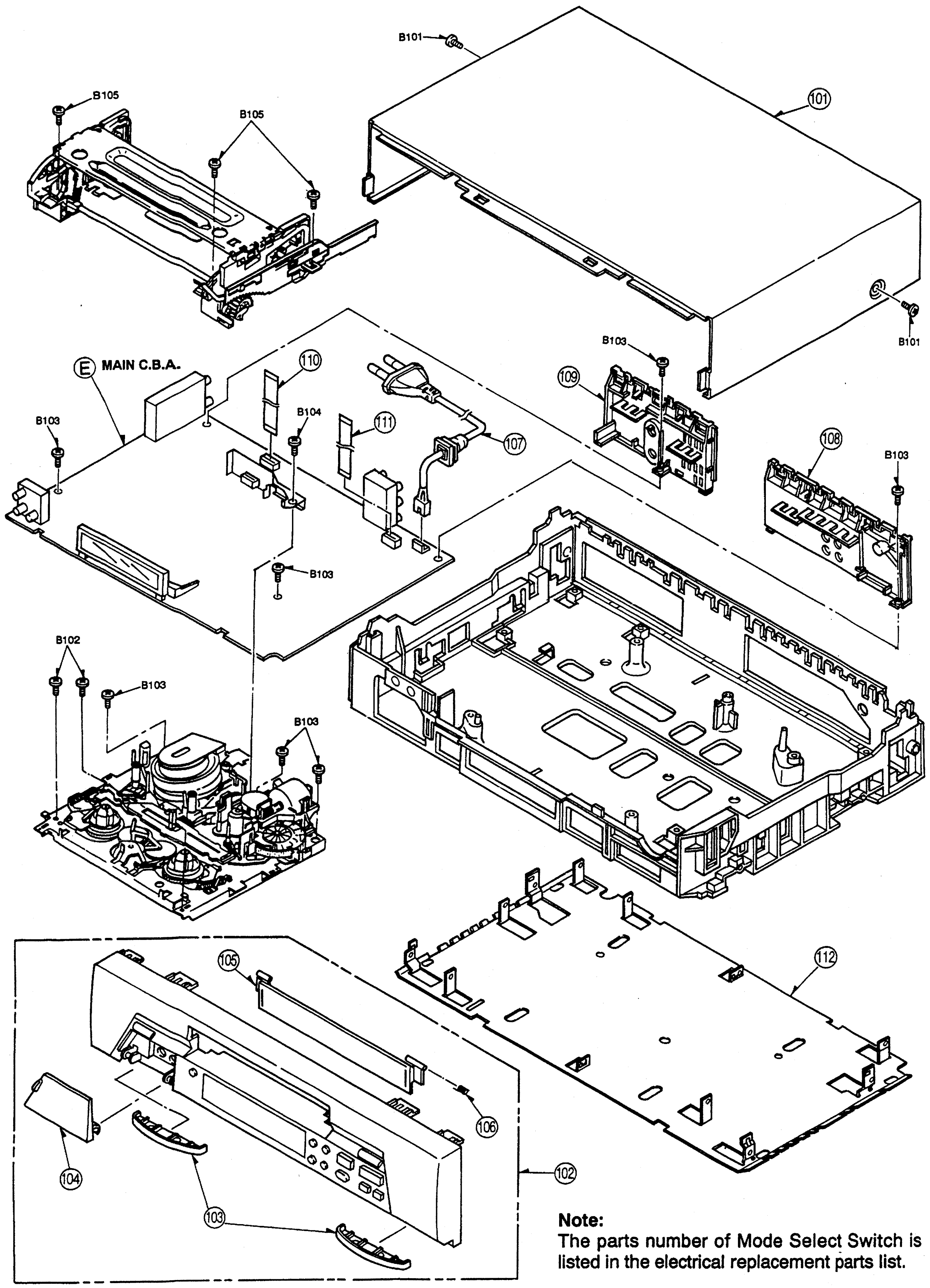


Note: 1.* Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE
Components identified with the mark < ! > have the special characteristics for safety.
When replacing any of these components, use only the same type.

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
1 (1)	VEG1537	CYLINDER UNIT	1	[SUPPLIED FROM MAV]
				NV-SJ400PM/PMP
1 (1)	VEG1539	CYLINDER UNIT	1	[SUPPLIED FROM MAV]
				NV-FJ600PM
2 (1)	VEH0883	UPPER CYLINDER UNIT	1	[SUPPLIED FROM MAV]
				NV-SJ400PM/PMP
2 (1)	VEH0912	UPPER CYLINDER UNIT	1	[SUPPLIED FROM MAV]
				NV-FJ600PM
3 (1)	VDB1256	CYLINDER RETAINER	1	
⚠ 4 (1)	VEK8840	CYLINDER STATOR UNIT	1	[SUPPLIED FROM MAV]
5 (1)	VXP1956	CYLINDER ROTOR UNIT	1	
6 (1)	VXS0135	EARTH BRUSH UNIT	1	
10 (1)	VEK8841	CAPSTAN UNIT	1	
11 (1)	VBS0155	FE HEAD	1	
12 (1)	VDB1431	TENSION ARM BOSS	1	
13 (1)	VDB1460	SUPPLY BRAKE ARM BOSS	1	
14 (1)	VDG1220KIT	MAIN CAM GEAR	1	
15 (1)	VDG1221	CONVERSION GEAR	1	
16 (1)	VDR0350	SUPPLY/TAKE-UP REEL TABLE	2	
18 (1)	VDV0382	CAPSTAN BELT	1	
19 (1)	VED0412	A/C HEAD UNIT	1	
20 (1)	VMX2656	P4 CAP	1	
21 (1)	VDG1217	WORM GEAR	1	
22 (1)	VDG1218	WORM WHEEL GEAR	1	
23 (1)	VDG1219	CENTRE GEAR	1	
24 (1)	VEM0604	LOADING MOTOR UNIT	1	
25 (1)	VMD2619	MOTOR BRACKET	1	
26 (1)	VMB3045	CONVERSION GEAR SPRING	1	
27 (1)	VMD2620	OPENER PIECE	1	
28 (1)	VMD2738	LED PRISM	1	
29 (1)	VML3165	DRIVE RACK ARM	1	
30 (1)	VML3166	MAIN LEVER	1	
31 (1)	VML3167	DRIVE MAIN LEVER ARM	1	
32 (1)	VML3172	SUPPLY SPRING ARM	1	
33 (1)	VML3176	CONVERSION LEVER A	1	
34 (1)	VML3177	CONVERSION LEVER B	1	
35 (1)	VXA6040	INCLINED BASE (S) UNIT	1	
37 (1)	VXA5854	INCLINED BASE (T) UNIT	1	
38 (1)	VXP1840	ROLLER POST	2	
39 (1)	VMA9672	SUPPORT ANGLE	1	
41 (1)	VXL2667	TAKE UP BRAKE ARM UNIT	1	
43 (1)	VXL2670	TAKE UP LOADING ARM UNIT	1	
44 (1)	VXL2798	TENSION ARM UNIT	1	
45 (1)	VXL2672	SUPPLY LOADING ARM UNIT	1	
46 (1)	VXL2785	PINCH ARM UNIT	1	
47 (1)	VXL2677	P5 ARM UNIT	1	
48 (1)	VXL2792	IDLER ARM UNIT	1	
49 (1)	VXL2733	SUPPLY BRAKE ARM UNIT	1	
50 (1)	VXL2747	LOADING RACK UNIT	1	
51 (1)	VXP2035	CENTRE CLUTCH UNIT	1	
60 (1)	VMA9516	TOP PLATE	1	
61 (1)	VMB3047	CONNECTION SPRING	1	
62 (1)	VMD3379	SIDE PLATE (L)	1	[SUPPLIED FROM MAV]
63 (1)	VXA6540	SIDE PLATE (R) UNIT	1	[SUPPLIED FROM MAV]
64 (1)	VXA5746	CASSETTE HOLDER UNIT	1	
65 (1)	VXP1730	MAIN SHAFT UNIT	1	
70 (1)	VDP1668-K	CLEANER ROLLER	1	
71 (1)	VML3164	CLEANER ARM	1	
72 (1)	VMD3795	FPC HOLDER	1	[SUPPLIED FROM MAV]

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
B1 (1)	VHD1117	SCREW	2	
B2 (1)	VHD0842	SCREW	1	
B3 (1)	VHD0843	SCREW	2	
B4 (1)	VHD0844	SCREW	2	
B6 (1)	VHD1066	SCREW	2	
B7 (1)	VHD1044	SCREW	1	
B8 (1)	VHD1060	SCREW	1	
B9 (1)	VHD1071	SCREW	1	
B11 (1)	XTS26+6F	SCREW	1	
B12 (1)	XTN26+6F	SCREW	1	
B13 (1)	XTN26+7J	SCREW	3	
B14 (1)	VHD1095	SCREW	1	
B15 (1)	VHD1185	SCREW	1	
B16 (1)	XTV26+6FR	SCREW	1	
N1 (1)	VHN0311	PUSH NUT	1	
W1 (1)	VMX2208	WASHER	1	
W2 (1)	VMX2650	WASHER	2	

2. CASING PARTS SECTION



Note:
The parts number of Mode Select Switch is listed in the electrical replacement parts list.

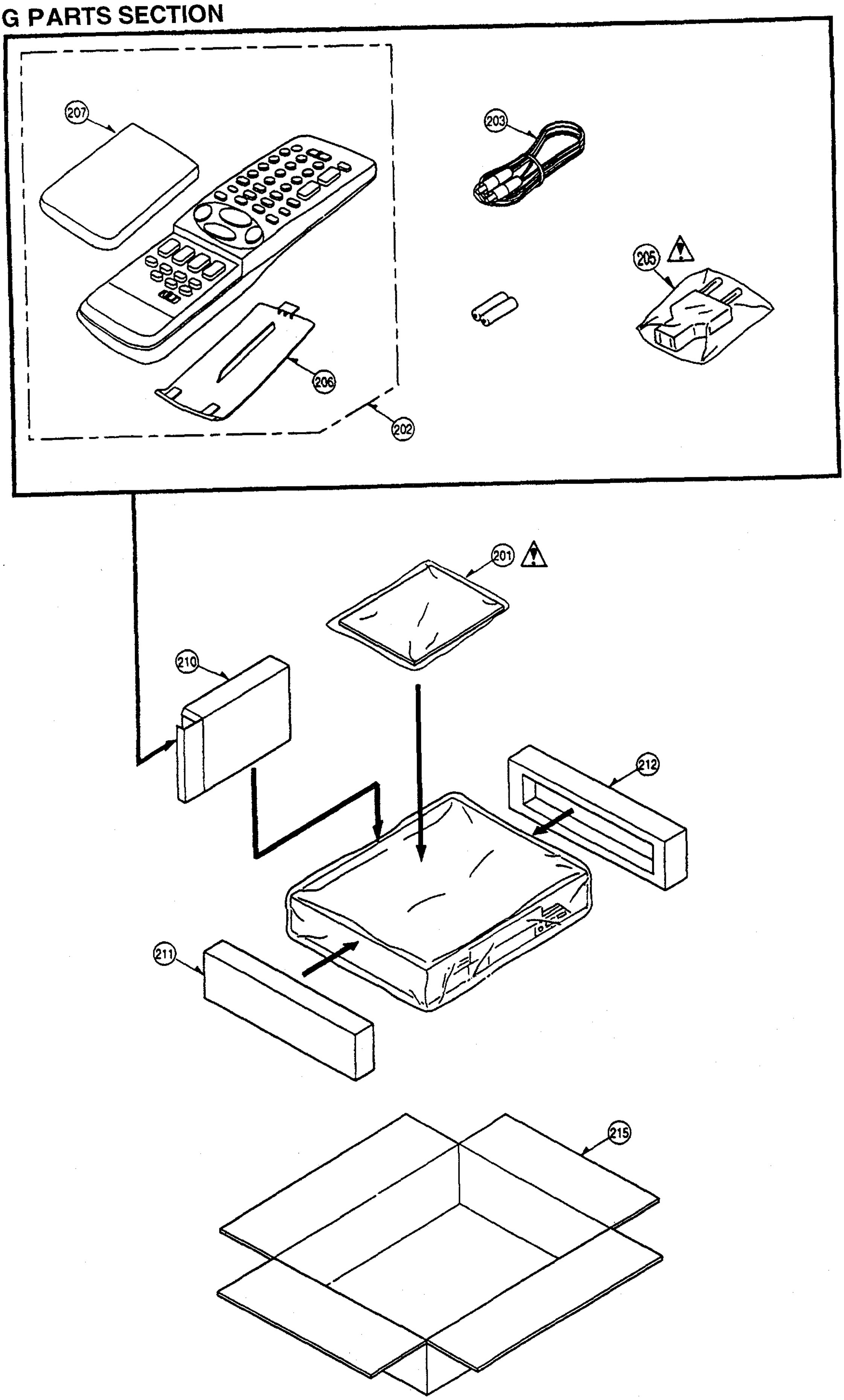
Note: 1.* Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE
Components identified with the mark < ! > have the special characteristics for safety.
When replacing any of these components, use only the same type.

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
101 (2)	VGM1682	TOP PANEL	1	[SUPPLIED FROM MAV]
				NV-SJ400PM/PMP
101 (2)	VGM1695	TOP PANEL	1	[SUPPLIED FROM MAV]
				NV-FJ600PM
102 (2)	VYP7678	FRONT PANEL UNIT	1	[SUPPLIED FROM MAV]
				NV-SJ400PM/PMP
102 (2)	VYP7676	FRONT PANEL UNIT	1	[SUPPLIED FROM MAV]
				NV-FJ600PM
103 (2)	RKA0072	LEG	2	
104 (2)	VKF3234	DOOR	1	[SUPPLIED FROM MAV]
				NV-SJ400PM/PMP
104 (2)	VKF3233	DOOR	1	[SUPPLIED FROM MAV]
				NV-FJ600PM
105 (2)	VKF3236	BLINDER PANEL	1	[SUPPLIED FROM MAV]
				NV-SJ400PM/PMP
105 (2)	VKF3235	BLINDER PANEL	1	[SUPPLIED FROM MAV]
				NV-FJ600PM
106 (2)	VMB2521	BLINDER SPRING	1	
107 (2)	VJA1000	AC CORD	1	[SUPPLIED FROM MAV]
108 (2)	VJH1133	JACK BOARD	1	[SUPPLIED FROM MAV]
109 (2)	VJH1139	ANT BOARD	1	[SUPPLIED FROM MAV]
110 (2)	VWJ1389	FLAT CARD CABLE (6P)	1	[SUPPLIED FROM MAV]
				AC HEAD - MAIN (P4002)
111 (2)	VWJ1390	FLAT CARD CABLE (9P)	1	[SUPPLIED FROM MAV]
				UDD - MAIN (P2502)
112 (2)	VKU0559	BOTTOM PLATE	1	[SUPPLIED FROM MAV]
B101 (2)	XTW3+10TFC	SCREW	2	
B102 (2)	VHD0168	SCREW	2	
B103 (2)	VHD1092	SCREW	7	
B104 (2)	XTV26+6FR	SCREW	1	
B105 (2)	XTV26+8FR	SCREW	3	

Note: 1.* Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE
Components identified with the mark < ! > have the special characteristics for safety.
When replacing any of these components, use only the same type.

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
⚠ 201 (3)	VQT8658	OPERATING INSTRUCTIONS	1	[SUPPLIED FROM MAV]
		(SPANISH)		NV-SJ400PM
				NV-FJ600PM
⚠ 201 (3)	VQT8659	OPERATING INSTRUCTIONS	1	[SUPPLIED FROM MAV]
		(ENGLISH)		NV-SJ400PMP
202 (3)	EUR571755	REMOTE CONTROLLER	1	[SUPPLIED FROM MAV]
203 (3)	VJA1013	CABLE	1	NV-SJ400PM/PMP
203 (3)	VJA1125	CABLE	1	NV-FJ600PM
⚠ 205 (3)	VJS1993	AC PLUG ADAPTOR	1	
206 (3)	------------	BATTERY COVER	1	
207 (3)	------------	DOOR PANEL	1	
210 (3)	------------	ACCESSORIES PACKING	1	
211 (3)	VPN5359	CUSHION (L)	1	[SUPPLIED FROM MAV]
212 (3)	VPN5360	CUSHION (R)	1	[SUPPLIED FROM MAV]
215 (3)	VPG0D29	PACKING CASE	1	[SUPPLIED FROM MAV]
				NV-SJ400PM
215 (3)	VPG0D30	PACKING CASE	1	[SUPPLIED FROM MAV]
				NV-SJ400PMP
215 (3)	VPG0D28	PACKING CASE	1	[SUPPLIED FROM MAV]
				NV-FJ600PM
		SERVICE FIXTURES & TOOLS		
	VFM8080HQFP	VHS ALIGNMENT TAPE (NTSC)	1	
	VFK0335	RETAINING RING REMOVER	1	
		(3mm/4mm)	1	
	VFK0329	POST ADJUSTMENT SCREWDRIVER	1	
	VFK0326	HEX WRENCH SET	1	
	VFK0132	BACK TENSION METER	1	
	VFK27	HEAD CLEANING STICK	1	
	VFK1024	MOLYTONE GREASE	1	
	VFK0680	WHITE GREASE	1	
	VFK0330	FINE ADJUSTMENT GEAR DRIVER	1	
	VFK2744	16P EXTENSION CABLE	1	
	VFK1301	SILICONE GREASE	1	
	VFK1298	FLOIL GREASE	1	

3. PACKING PARTS SECTION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4-2. ELECTRICAL REPLACEMENT PARTS LIST

Note: 1. Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE : Components identified with the mark < ! > have the special characteristics for safety. When replacing any of these components, use only the same type.
3. Unless otherwise specified,
All resistors are in OHMS , K=1,000 OHMS. All capacitors are in MICRO-FARADS(uf) , P=uuF.
4. The P.C.Board units marked width"■"show below the main assembled parts.
5. The marking(RTL) indicates the retention time is limited for this item. After the discontinuation of this assembly in production, it will no longer be available.

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
■	VEP06D56E	MAIN C.B.A.	1	[SUPPLIED FROM MAV]
		(Page:4-6)		(RTL)
				NV-SJ400PM
■	VEP06D56F	MAIN C.B.A.	1	[SUPPLIED FROM MAV]
		(Page:4-9)		(RTL)
				NV-SJ400PMP
■	VEP06D56M	MAIN C.B.A.	1	[SUPPLIED FROM MAV]
		(Page:4-12)		(RTL)
				NV-FJ600PM
■	------------	CYLINDER STATOR C.B.A.	1	INCLUDED IN
		(Page:4-15)		CYLINDER STATOR UNIT
				(VEK8840).
■	------------	CAPSTAN DRIVE C.B.A.	1	INCLUDED IN
				CAPSTAN UNIT (VEK8841).
⚠ TU7401	ENG56714G1	TUNER	1	[SUPPLIED FROM MAV]
				NV-SJ400PM/PMP
⚠ TU7401	ENG56715G1	TUNER	1	[SUPPLIED FROM MAV]
				NV-FJ600PM
⚠ F1101	XBA2C16TB0	FUSE	1	
■	VEP06D56E	MAIN C.B.A.		[SUPPLIED FROM MAV]
				(RTL) NV-SJ400PM
B7751	CR2354-1GUF	LITHIUM BATTERY	1	
⚠ C1120	ECQU2A333MVA	P. CAPACITOR 250V 0.033U	1	[SUPPLIED FROM MAV]
⚠ C1121, 22	ECKMNA331MBV	CERAMIC CAPACITOR	2	[SUPPLIED FROM MAV]
⚠ C1123	ECKMNA102MEV	CERAMIC CAPACITOR	1	[SUPPLIED FROM MAV]
C1140	ECEC2GG680	E. CAPACITOR 400V 68U	1	
C1151	ECQB1H473JF	P. CAPACITOR 50V 0.047U	1	
C1152	ECQB1H103JF	P. CAPACITOR 50V 0.01U	1	
C1153	ECQV1H104JM	P. CAPACITOR 50V 0.1U	1	
C1154	ECQB1H223JF	P. CAPACITOR 50V 0.022U	1	
C1155	ECKN3A271KBP	CERAMIC CAPACITOR	1	[SUPPLIED FROM MAV]
C1200	ECQV1H104JM	P. CAPACITOR 50V 0.1U	1	
C1210	ECKN3A272KBP	CERAMIC CAPACITOR	1	[SUPPLIED FROM MAV]
C1230	VCEA1HJB560	E. CAPACITOR 50V 56U	1	[SUPPLIED FROM MAV]
C1250	VCEA1CJB681	E. CAPACITOR 16V 680U	1	[SUPPLIED FROM MAV]
C1251	VCEA1CEC471	E. CAPACITOR 16V 470U	1	
C1260	VCEA1AJH681	E. CAPACITOR 10V 680U	1	
C1261	VCEA1AEC221	E. CAPACITOR 10V 220U	1	[SUPPLIED FROM MAV]
C1270	VCEA1HJB560	E. CAPACITOR 50V 56U	1	[SUPPLIED FROM MAV]
C1280	VCEA1AJB181	E. CAPACITOR 10V 180U	1	[SUPPLIED FROM MAV]
C1341	ECUM1H103KBN	C. CAPACITOR CH 50V 0.01U	1	
C1342	VCEA1ECB4R7	E. CAPACITOR 25V 4.7U	1	
C1343	ECUM1E104KBN	C. CAPACITOR CH 25V 0.1U	1	
C1351	ECUM1E104KBN	C. CAPACITOR CH 25V 0.1U	1	
C1352	VCEA0JCB470	E. CAPACITOR 6.3V 47U	1	
C2001	ECUM1H330JCN	C. CAPACITOR CH 50V 33P	1	
C2003	ECUM1C474ZFN	C. CAPACITOR CH 16V 0.47U	1	
C2051	ECEA0JKN220	E. CAPACITOR 6.3V 22U	1	
C2053	VCEA1HCB3R3	E. CAPACITOR 50V 3.3U	1	
C2054	ECUM1H392KBN	C. CAPACITOR CH 50V 3900P	1	
C2055	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C2099	ECUM1H681JCN	C. CAPACITOR CH 50V 680P	1	
C2501-03	VCEA1VBB4R7	E. CAPACITOR 35V 4.7U	3	
C2504	ECUM1E683KBN	C. CAPACITOR CH 25V 0.068U	1	
C2505-07	ECUM1C154KBN	C. CAPACITOR CH 16V 0.15U	3	
C2508	ECUM1H473ZFN	C. CAPACITOR CH 50V 0.047U	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
C2509	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C2510	VCEA0JCB221	E. CAPACITOR 6.3V 220U	1	
C2551	ECUM1E563KBN	C. CAPACITOR CH 25V 0.056U	1	
C2552	ECUM1H563ZFN	C. CAPACITOR CH 50V 0.056U	1	
C2561	ECUM1E563KBN	C. CAPACITOR CH 25V 0.056U	1	
C2562	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C2571	VCEA1CCB470	E. CAPACITOR 16V 47U	1	
C3001	ECUM1E104KBN	C. CAPACITOR CH 25V 0.1U	1	
C3002	ECUM1H151JCN	C. CAPACITOR CH 50V 150P	1	
C3003	ECUM1E104KBN	C. CAPACITOR CH 25V 0.1U	1	
C3004	ECUM1H180JCN	C. CAPACITOR CH 50V 18P	1	
C3005	ECUM1E104KBN	C. CAPACITOR CH 25V 0.1U	1	
C3006	ECUM1H473KBN	C. CAPACITOR CH 50V 0.047U	1	
C3007, 08	ECUM1E104KBN	C. CAPACITOR CH 25V 0.1U	2	
C3010	VCEA1ECB3R3	E. CAPACITOR 25V 3.3U	1	[SUPPLIED FROM MAV]
C3011, 12	VCEA1HCB010	E. CAPACITOR 50V 1U	2	
C3013	VCEA1HCB2R2	E. CAPACITOR 50V 2.2U	1	
C3014	VCEA1HCB010	E. CAPACITOR 50V 1U	1	
C3015	ECUM1E104KBN	C. CAPACITOR CH 25V 0.1U	1	
C3016	VCEA0JCB470	E. CAPACITOR 6.3V 47U	1	
C3017	ECUM1C224KBN	C. CAPACITOR CH 16V 0.22U	1	
C3018	ECUM1E104KBN	C. CAPACITOR CH 25V 0.1U	1	
C3019	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C3021	ECUM1H270JCN	C. CAPACITOR CH 50V 27P	1	
C3022	ECUM1H102KBN	C. CAPACITOR CH 50V 1000P	1	
C3023	ECUM1A335KBN	C. CAPACITOR CH 10V 3.3U	1	
C3024	ECUM1H040CCN	C. CAPACITOR CH 50V 4P	1	
C3025	ECUM1H223KBN	C. CAPACITOR CH 50V 0.022U	1	
C3026	VCEA0JCB470	E. CAPACITOR 6.3V 47U	1	
C3027	ECUM1C224KBN	C. CAPACITOR CH 16V 0.22U	1	
C3028	ECUM1H472KBN	C. CAPACITOR CH 50V 4700P	1	
C3029	ECUM1E104KBN	C. CAPACITOR CH 25V 0.1U	1	
C3030	ECUM1E333KBN	C. CAPACITOR CH 25V 0.033U	1	
C3031	ECUM0J475VBN	C. CAPACITOR CH 6.3V 4.7U	1	
C3032	ECUM1C474KBN	C. CAPACITOR CH 16V 0.47U	1	
C3033	ECUM1A225KBN	C. CAPACITOR CH 10V 2.2U	1	
C3034	VCEA1CCB100	E. CAPACITOR 16V 10U	1	
C3035	ECUM1H103KBN	C. CAPACITOR CH 50V 0.01U	1	
C3036	VCEA1ECB4R7	E. CAPACITOR 25V 4.7U	1	
C3037	ECUM1E104KBN	C. CAPACITOR CH 25V 0.1U	1	
C3038	VCEA1CCB100	E. CAPACITOR 16V 10U	1	
C3039	VCEA0JCB470	E. CAPACITOR 6.3V 47U	1	
C3040	ECUM1E104KBN	C. CAPACITOR CH 25V 0.1U	1	
C3043	ECUM1H223KBN	C. CAPACITOR CH 50V 0.022U	1	
C3044	ECUM1H151JCN	C. CAPACITOR CH 50V 150P	1	
C3045	ECUM1H241JCN	C. CAPACITOR CH 50V 240P	1	[SUPPLIED FROM MAV]
C3046	ECUM1H820JCN	C. CAPACITOR CH 50V 82P	1	
C3048	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C3049	ECUM1H681JCN	C. CAPACITOR CH 50V 680P	1	
C3150	ECUM1H101JCN	C. CAPACITOR CH 50V 100P	1	
C3201	VCEA0JEC471	E. CAPACITOR 6.3V 470U	1	
C4010	VCEA1CCB100	E. CAPACITOR 16V 10U	1	
C4011	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
C4012	ECUM1E104KBN	C. CAPACITOR CH 25V 0.1U	1	
C4041, 42	VCEA1ECB4R7	E. CAPACITOR 25V 4.7U	2	
C4043	VCEA0JCB220	E. CAPACITOR 6.3V 22U	1	
C4061	ECUM1H103KBN	C. CAPACITOR CH 50V 0.01U	1	
C4062	VCEA0JCB330	E. CAPACITOR 6.3V 33U	1	
C4063	VCEA1ECB3R3	E. CAPACITOR 25V 3.3U	1	[SUPPLIED FROM MAV]
C4064, 65	ECUM1H182KBN	C. CAPACITOR CH 50V 1800P	2	
C4081	ECQB1H223JF	P. CAPACITOR 50V 0.022U	1	
C4082	ECUM1H471JCN	C. CAPACITOR CH 50V 470P	1	
C4083	VCEA0JCB101	E. CAPACITOR 6.3V 100U	1	
C4084	ECUM1H152KBN	C. CAPACITOR CH 50V 1500P	1	
C4085	ECUM1H223KBN	C. CAPACITOR CH 50V 0.022U	1	
C4601	VCEA1CCB100	E. CAPACITOR 16V 10U	1	
C5002	ECUM1E104KBN	C. CAPACITOR CH 25V 0.1U	1	
C5003	VCEA0JCB101	E. CAPACITOR 6.3V 100U	1	
C5004	ECUM1E104KBN	C. CAPACITOR CH 25V 0.1U	1	
C5005-10	ECUM1H103KBN	C. CAPACITOR CH 50V 0.01U	6	
C6001, 02	ECUM1H180JCN	C. CAPACITOR CH 50V 18P	2	
C6003	ECUM1H220JCN	C. CAPACITOR CH 50V 22P	1	
C6004	ECUM1H180JCN	C. CAPACITOR CH 50V 18P	1	
C6005	VCEA1HCB3R3	E. CAPACITOR 50V 3.3U	1	
C6006	ECUM1H101JCN	C. CAPACITOR CH 50V 100P	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C6007	ECUM1H820JCN	C. CAPACITOR CH 50V 82P	1	
C6008	ECUM1H471JCN	C. CAPACITOR CH 50V 470P	1	
C6009	ECUM1H103ZFN	C. CAPACITOR CH 50V 0. 01U	1	
C6010	ECUM1H060DCN	C. CAPACITOR CH 50V 6P	1	
C6013	ECUM1C105ZFN	C. CAPACITOR CH 16V 1U	1	
C6014	ECUM1H102KBN	C. CAPACITOR CH 50V 1000P	1	
C6015	ECUM1E333KBN	C. CAPACITOR CH 25V 0. 033U	1	
C6016	ECUM1H102KBN	C. CAPACITOR CH 50V 1000P	1	
C6017	ECUM1H561JCN	C. CAPACITOR CH 50V 560P	1	
C6020	ECUM1H182KBN	C. CAPACITOR CH 50V 1800P	1	
C6025	ECUM1H103KBN	C. CAPACITOR CH 50V 0. 01U	1	
C6026	ECUM1H060DCN	C. CAPACITOR CH 50V 6P	1	
C6101-03	ECUM1H104ZFN	C. CAPACITOR CH 50V 0. 1U	3	
C6106	ECUM1E104KBN	C. CAPACITOR CH 25V 0. 1U	1	
C6108	ECUM1H272KBN	C. CAPACITOR CH 50V 2700P	1	
C6109	ECUM1H104ZFN	C. CAPACITOR CH 50V 0. 1U	1	
C6111	ECUM1H104ZFN	C. CAPACITOR CH 50V 0. 1U	1	
C6112, 13	ECUM1H120JCN	C. CAPACITOR CH 50V 12P	2	
C6301, 02	ECUM1H103ZFN	C. CAPACITOR CH 50V 0. 01U	2	
C7401	VCEA1HCB010	E. CAPACITOR 50V 1U	1	
C7403	VCEA1CCB470	E. CAPACITOR 16V 47U	1	
C7405	VCEA1HJH560	E. CAPACITOR 50V 56U	1	
C7409	ECUM1H470JCN	C. CAPACITOR CH 50V 47P	1	
C7410	ECUM1H682KBN	C. CAPACITOR CH 50V 6800P	1	
C7411	ECUM1H103KBN	C. CAPACITOR CH 50V 0. 01U	1	
C7416	VCEA0JCB470	E. CAPACITOR 6. 3V 47U	1	
C7425	ECUM1H222KBN	C. CAPACITOR CH 50V 2200P	1	
C7427	ECUM1H471JCN	C. CAPACITOR CH 50V 470P	1	
C7501	VCEA1VCB100	E. CAPACITOR 35V 10U	1	[SUPPLIED FROM MAV]
C7502	ECUM1H100DCN	C. CAPACITOR CH 50V 10P	1	
C7601	ECUM1H103ZFN	C. CAPACITOR CH 50V 0. 01U	1	
C7603	VCEA0JCB101	E. CAPACITOR 6. 3V 100U	1	
C7604	ECUM1H104ZFN	C. CAPACITOR CH 50V 0. 1U	1	
C7752	VCEA0JCB331	E. CAPACITOR 6. 3V 330U	1	
⚠ D1110	ENC471D5ATRB	DIODE	1	
⚠ D1111	ENC471D5ATHB	DIODE	1	[SUPPLIED FROM MAV]
D1140	DF08S-6622	DIODE	1	[SUPPLIED FROM MAV]
D1152	1SS254	DIODE	1	
D1155	1SS254	DIODE	1	
D1157	MA4027L	DIODE	1	[SUPPLIED FROM MAV]
D1180	MA7470	DIODE	1	[SUPPLIED FROM MAV]
D1230	MA185	DIODE	1	
D1250, 51	11EQS06	DIODE	2	
D1260	11EQS04	DIODE	1	
D1270	MA185	DIODE	1	
D1280	AU01Z	DIODE	1	
D1341	MA4130N-L	DIODE	1	[SUPPLIED FROM MAV]
D1351	MA4056N-H	DIODE	1	[SUPPLIED FROM MAV]
D1501	SIR505S	DIODE	1	
D2001, 02	1SS254	DIODE	2	
D3501	1SS254	DIODE	1	
D3502	AU01Z	DIODE	1	
D6302	RB441P	DIODE	1	
D6305	MA4062N-L	DIODE	1	[SUPPLIED FROM MAV]
D6306	MA4056N-H	DIODE	1	[SUPPLIED FROM MAV]
D7402	MA4300N-M	DIODE	1	
D7501	MA4200N	DIODE	1	[SUPPLIED FROM MAV]
D7751, 52	RB441P	DIODE	2	
D7753	1SS254	DIODE	1	
D7754	RB441P	DIODE	1	
DP7501	VSL0538-B	FLUORESCENT LAMP	1	[SUPPLIED FROM MAV]
⚠ DZ1110	VSQ1158	SURGE ABSORBER	1	
F1101	XBA2C16TB0	FUSE	1	
IC1200	UPC1093J	IC	1	
IC1511, 12	RP1354N	IC	2	
IC2501	AN3811NK	IC	1	
IC3001	HA118421NF	IC	1	[SUPPLIED FROM MAV]
IC6001	M3777AVFFR	IC	1	[SUPPLIED FROM MAV]
IC6201	PST993E	IC	1	[SUPPLIED FROM MAV]
IC7501	M35502AFP	IC	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
⚠ IP1280	VSF0015A04	IC PROTECTOR	1	
IR7501	PNA4611M08VT	PHOTO DIODE	1	[SUPPLIED FROM MAV]
JK3201	VJJ0679	PIN JACK 4-PIN	1	[SUPPLIED FROM MAV]
JK3202	VJJ0681	PIN JACK 2-PIN	1	[SUPPLIED FROM MAV]
K1361	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
K1521	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
K3001	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
K3011	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
K4651	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
K6001-03	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	3	
K6008	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
K7403	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
K7502	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
⚠ L1120, 21	VLF1349N0R5	LINE FILTER	2	
L1250	VLQ0655K220	COIL 22UH	1	
L1260	VLQ0655K220	COIL 22UH	1	
L2501	VLQ0822J221	COIL 220UH	1	[SUPPLIED FROM MAV]
L3002	VLQ0599J271	COIL 270UH	1	
L3003	VLQ0822J150	COIL 15UH	1	[SUPPLIED FROM MAV]
L3004	VLQ0599J390	COIL 39UH	1	
L3005	VLQ0163J120	COIL 12UH	1	
L3006	VLQ0599J390	COIL 39UH	1	
L3007	VLQ0599J560	COIL 56UH	1	
L3008	VLQ0822J560	COIL 56UH	1	[SUPPLIED FROM MAV]
L3010	VLQ0599J120	COIL 12UH	1	
L3011	VLQ0599J121	COIL 120UH	1	
L3012	VLQ0599J120	COIL 12UH	1	
L3013	VLQ0599J101	COIL 100UH	1	
L4081	ELESE471KA	INDUCTOR 470UH	1	
L5001	VLQ0599J560	COIL 56UH	1	
L6001	VLQ0599J5R6	COIL 5. 6UH	1	[SUPPLIED FROM MAV]
L6002	VLQ0599J820	COIL 82UH	1	
L6004	VLQ0599J1R5	COIL 1. 5UH	1	
L7401	VLQ0822J100	COIL 10UH	1	[SUPPLIED FROM MAV]
L7405	VLQ0822J560	COIL 56UH	1	[SUPPLIED FROM MAV]
L7410	VLQ0599J820	COIL 82UH	1	
LB1120	VLP0056	FERRITE BEAD	1	
LB1210	VLP0056	FERRITE BEAD	1	
LB5001-03	VLP0145	COIL	3	
LB5004-06	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	3	
LB6101	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
LR1150	VLP0392	COIL	1	[SUPPLIED FROM MAV]
⚠ P1102	VJP2073	CONNECTOR (MALE) 3P	1	
P1531	VJS3837A002	CONNECTOR (FEMALE) 2P	1	
P2502	VJS3537A009G	CONNECTOR (FEMALE) 9P	1	
P2571	VJP3835A012	CONNECTOR (MALE) 12P	1	
P4001	VJS3837A002	CONNECTOR (FEMALE) 2P	1	
P4002	VJS3537A006G	CONNECTOR (FEMALE) 6P	1	
P5001	VJS3537A010G	CONNECTOR (FEMALE) 10P	1	
Q1150	2SK2645	TRANSISTOR	1	
Q1151	2SD1992A-R	TRANSISTOR	1	
Q1152	2SC3311A-S	TRANSISTOR	1	[SUPPLIED FROM MAV]
Q1153	2SK2876	TRANSISTOR	1	
⚠ Q1200	PC123ZY2	PHOTO COUPLER	1	
Q1341	2SD1994A-S	TRANSISTOR	1	
Q1342	2SD601A	TRANSISTOR	1	
Q1351	2SC1959-Y	TRANSISTOR	1	[SUPPLIED FROM MAV]
Q1354	2SC1959-Y	TRANSISTOR	1	[SUPPLIED FROM MAV]
Q1501	PNB2301MBV	TRANSISTOR	1	
Q1502	PNB2301MAV	TRANSISTOR	1	
Q3001	2SB709A	TRANSISTOR	1	
Q3002, 03	2SD601A	TRANSISTOR	2	
Q3004	2SB709A	TRANSISTOR	1	
Q3005	2SD601A	TRANSISTOR	1	
Q3202	2SB709A	TRANSISTOR	1	
Q4081	2SD602A-R	TRANSISTOR	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
Q4082	2SD1149	TRANSISTOR	1	
Q4083	2SD601A	TRANSISTOR	1	
Q4084	2SB710A	TRANSISTOR	1	
Q6305, 06	2SD601A	TRANSISTOR	2	
QR1342	MUN2112	TRANSISTOR-RESISTOR	1	
QR3150, 51	MUN2213	TRANSISTOR-RESISTOR	2	
QR4081	MUN2111	TRANSISTOR-RESISTOR	1	
QR4082	MUN2213	TRANSISTOR-RESISTOR	1	
R1150	ERDS2TJ105	C. RESISTOR 1/4W 1M	1	
R1153	ERG2SJ331	M. RESISTOR 2W 330	1	
R1154	ERDS2TJ105	C. RESISTOR 1/4W 1M	1	
R1155	ERDS2TJ104	C. RESISTOR 1/4W 100K	1	
R1156	ERDS2TJ330	C. RESISTOR 1/4W 33	1	
R1157	EROS2CKG1601	M. RESISTOR 1/4W 1. 6K	1	
R1158	ERDS2TJ331	C. RESISTOR 1/4W 330	1	
R1159	ERDS2TJ3R3	C. RESISTOR 1/4W 3. 3	1	
R1160	ERX1SJR51	M. RESISTOR 1W 0. 51	1	
R1161	ERDS2TJ101	C. RESISTOR 1/4W 100	1	
R1162	ERDS2TJ102	C. RESISTOR 1/4W 1K	1	
R1163	ERDS2TJ101	C. RESISTOR 1/4W 100	1	
R1200	ERJ6RBD103	M. RESISTOR CH 1/10W 10K	1	
R1202	ERJ6RBD222	M. RESISTOR CH 1/10W 2. 2K	1	
R1203	ERJ6RBD303	M. RESISTOR CH 1/10W 30K	1	
R1204	ERDS2TJ123	C. RESISTOR 1/4W 12K	1	
R1205	ERJ6GMYJ222	M. RESISTOR CH 1/10W 2. 2K	1	
R1206	ERJ6GMYJ271	M. RESISTOR CH 1/10W 270	1	
R1280	ERG2SJ100	M. RESISTOR 2W 10	1	
R1341	ERDS2TJ103	C. RESISTOR 1/4W 10K	1	
R1342	ERJ6GMYJ104	M. RESISTOR CH 1/10W 100K	1	
R1351	ERDS2TJ471	C. RESISTOR 1/4W 470	1	
R1501	ERJ6GMYJ393	M. RESISTOR CH 1/10W 39K	1	
R1502	ERJ6GMYJ273	M. RESISTOR CH 1/10W 27K	1	
R1503	ERDS2TJ121	C. RESISTOR 1/4W 120	1	
R1508	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R1511, 12	ERJ6GMYJ273	M. RESISTOR CH 1/10W 27K	2	
R1513	ERJ6GMYJ181	M. RESISTOR CH 1/10W 180	1	
R2001	ERJ6GMYJ392	M. RESISTOR CH 1/10W 3. 9K	1	
R2002	ERJ6GMYJ105	M. RESISTOR CH 1/10W 1M	1	
R2099	ERJ6GMYJ682	M. RESISTOR CH 1/10W 6. 8K	1	
R2504	ERJ6GEYJ1R5	M. RESISTOR CH 1/10W 1. 5	1	[SUPPLIED FROM MAV]
R2505	ERJ6GEYJ1R2	M. RESISTOR CH 1/10W 1. 2	1	
R2506	ERDS2TJ331	C. RESISTOR 1/4W 330	1	
R2507-09	ERDS2TJ330	C. RESISTOR 1/4W 33	3	
R2551, 52	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	2	
R2561	ERJ6GMYJ222	M. RESISTOR CH 1/10W 2. 2K	1	
R2562	ERJ6GMYJ473	M. RESISTOR CH 1/10W 47K	1	
R3001	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R3002	ERJ6GMYJ153	M. RESISTOR CH 1/10W 15K	1	
R3004	ERJ6GMYJ152	M. RESISTOR CH 1/10W 1. 5K	1	
R3005	ERJ6GMYJ822	M. RESISTOR CH 1/10W 8. 2K	1	
R3006	ERJ6GMYJ152	M. RESISTOR CH 1/10W 1. 5K	1	
R3007	ERJ6GMYJ112	M. RESISTOR CH 1/10W 1. 1K	1	
R3008	ERJ6GMYJ152	M. RESISTOR CH 1/10W 1. 5K	1	
R3011-13	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	3	
R3014	ERJ6GMYJ273	M. RESISTOR CH 1/10W 27K	1	
R3015	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R3016, 17	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	2	
R3018	ERJ6GMYJ272	M. RESISTOR CH 1/10W 2. 7K	1	
R3019, 20	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	2	
R3022	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
R3024	ERJ6GMYJ222	M. RESISTOR CH 1/10W 2. 2K	1	
R3026	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
R3029	ERJ6GMYJ392	M. RESISTOR CH 1/10W 3. 9K	1	
R3030	ERJ6GMYJ183	M. RESISTOR CH 1/10W 18K	1	
R3031	ERJ6GMYJ561	M. RESISTOR CH 1/10W 560	1	
R3032	ERJ6GMYJ332	M. RESISTOR CH 1/10W 3. 3K	1	
R3033	ERJ6GMYJ820	M. RESISTOR CH 1/10W 82	1	
R3034	ERJ6GMYJ275	M. RESISTOR CH 1/10W 2. 7M	1	
R3035	ERJ6GMYJ395	M. RESISTOR CH 1/10W 3. 9M	1	
R3036	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R3038	ERJ6GMYJ684	M. RESISTOR CH 1/10W 680K	1	
R3150	ERJ6GMYJ822	M. RESISTOR CH 1/10W 8. 2K	1	
R3151	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R3202	ERDS2TJ681	C. RESISTOR 1/4W 680	1	
R3203	ERJ6GMYJ271	M. RESISTOR CH 1/10W 270	1	
R3211, 12	ERJ6GMYJ750	M. RESISTOR CH 1/10W 75	2	
R3514, 15	ERJ6GMYJ222	M. RESISTOR CH 1/10W 2. 2K	2	
R3516	ERJ6GMYJ473	M. RESISTOR CH 1/10W 47K	1	
R3517	ERJ6GMYJ333	M. RESISTOR CH 1/10W 33K	1	
R3701	ERJ6GMYJ750	M. RESISTOR CH 1/10W 75	1	
R3702	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
R3902	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R3904	ERJ6GMYJ622	M. RESISTOR CH 1/10W 6. 2K	1	
R4011	ERJ6GMYJ473	M. RESISTOR CH 1/10W 47K	1	
R4012	ERJ6GMYJ153	M. RESISTOR CH 1/10W 15K	1	
R4013, 14	ERJ6GMYJ682	M. RESISTOR CH 1/10W 6. 8K	2	
R4015	ERJ6GMYJ183	M. RESISTOR CH 1/10W 18K	1	
R4016	ERJ6GMYJ473	M. RESISTOR CH 1/10W 47K	1	
R4017	ERJ6GMYJ682	M. RESISTOR CH 1/10W 6. 8K	1	
R4061	ERJ6GMYJ334	M. RESISTOR CH 1/10W 330K	1	
R4062	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R4063	ERJ6GMYJ221	M. RESISTOR CH 1/10W 220	1	
R4071	ERJ6GMYJ153	M. RESISTOR CH 1/10W 15K	1	
R4081	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R4082	ERJ6GMYJ332	M. RESISTOR CH 1/10W 3. 3K	1	
R4084, 85	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	2	
R4086, 87	ERJ6GMYJ222	M. RESISTOR CH 1/10W 2. 2K	2	
R4526	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
R4527	ERJ6GMYJ221	M. RESISTOR CH 1/10W 220	1	
R4601	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
R4602	ERJ6GMYJ332	M. RESISTOR CH 1/10W 3. 3K	1	
R4603	ERJ6GMYJ681	M. RESISTOR CH 1/10W 680	1	
R6001	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R6002	ERJ6GMYJ681	M. RESISTOR CH 1/10W 680	1	
R6003	ERJ6GMYJ274	M. RESISTOR CH 1/10W 270	1	
R6004	ERJ6GMYJ221	M. RESISTOR CH 1/10W 220	1	
R6006	ERJ6GMYJ183	M. RESISTOR CH 1/10W 18K	1	
R6007	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R6008	ERJ6GMYJ151	M. RESISTOR CH 1/10W 150	1	
R6009, 10	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	2	
R6011	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R6012	ERJ6GMYJ471	M. RESISTOR CH 1/10W 470	1	
R6013	ERJ6GMYJ105	M. RESISTOR CH 1/10W 1M	1	
R6017	ERJ6GMYJ222	M. RESISTOR CH 1/10W 2. 2K	1	
R6018	ERJ6GMYJ473	M. RESISTOR CH 1/10W 47K	1	
R6023	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R6102	ERJ6GMYJ222	M. RESISTOR CH 1/10W 2. 2K	1	
R6103	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R6104-07	ERJ6GMYJ221	M. RESISTOR CH 1/10W 220	4	
R6109, 10	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	2	
R6201	ERJ6GMYJ332	M. RESISTOR CH 1/10W 3. 3K	1	
R6307	ERJ6GMYJ222	M. RESISTOR CH 1/10W 2. 2K	1	
R6309	ERDS2TJ821	C. RESISTOR 1/4W 820	1	
R7401	ERDS2TJ102	C. RESISTOR 1/4W 1K	1	
R7402, 03	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	2	
R7502	ERJ6GMYJ472	M. RESISTOR CH 1/10W 4. 7K	1	
R7503	ERJ6GMYJ223	M. RESISTOR CH 1/10W 22K	1	
R7504	ERJ6GMYJ682	M. RESISTOR CH 1/10W 6. 8K	1	
R7505	ERJ6GMYJ123	M. RESISTOR CH 1/10W 12K	1	
R7506	ERJ6GMYJ223	M. RESISTOR CH 1/10W 22K	1	
R7507	ERJ6GMYJ563	M. RESISTOR CH 1/10W 56K	1	
R7508	ERJ6GMYJ183	M. RESISTOR CH 1/10W 18K	1	
R7509	ERDS2TJ681	C. RESISTOR 1/4W 680	1	
R7510	ERJ6GMYJ183	M. RESISTOR CH 1/10W 18K	1	
R7511	ERJ6GMYJ182	M. RESISTOR CH 1/10W 1. 8K	1	
R7512	ERJ6GMYJ332	M. RESISTOR CH 1/10W 3. 3K	1	
R7513	ERJ6GMYJ472	M. RESISTOR CH 1/10W 4. 7K	1	
R7514	ERJ6GMYJ682	M. RESISTOR CH 1/10W 6. 8K	1	
R7515	ERJ6GMYJ183	M. RESISTOR CH 1/10W 18K	1	
R7516	ERJ6GMYJ182	M. RESISTOR CH 1/10W 1. 8K	1	
R7517	ERJ6GMYJ332	M. RESISTOR CH 1/10W 3. 3K	1	
R7518	ERJ6GMYJ123	M. RESISTOR CH 1/10W 12K	1	
R7601	ERJ6GMYJ101	M. RESISTOR CH 1/10W 100	1	
R7602	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R7751	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
S1531	VES0834	S-TAB SWITCH	1	
S1532	VSS0520	MODE SELECT SWITCH	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
S7401	VSS0530	AV SELECT SWITCH	1	
S7501	EVQPC105K	SWITCH	1	[SUPPLIED FROM MAV]
S7502, 03	EVQ11L07B	SWITCH	2	
S7505	EVQ11G04M	SWITCH	1	[SUPPLIED FROM MAV]
S7506	EVQ11L07B	SWITCH	1	
S7509, 10	EVQ11L07B	SWITCH	2	
S7512	EVQ11L07B	SWITCH	1	
S7513	EVQ11G04M	SWITCH	1	[SUPPLIED FROM MAV]
S7514-16	EVQ11L07B	SWITCH	3	
⚠ T1150	VLT0967	SWITCHING TRANSFORMER	1	[SUPPLIED FROM MAV]
T4081	VLT0895	TRANSFORMER	1	
⚠ TU7401	ENG56714G1	TUNER	1	[SUPPLIED FROM MAV]
W504	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
W506-09	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	4	
W511-16	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	6	
W518, 19	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	2	
W523, 24	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	2	
X3002	VSX1089	CRYSTAL OSCILLATOR	1	[SUPPLIED FROM MAV]
X6001	VSX0995	CRYSTAL OSCILLATOR	1	
X6002	VSX0914	CRYSTAL OSCILLATOR	1	[SUPPLIED FROM MAV]
		MISCELLANEOUS		
	VSC4998	HA ANGLE	1	[SUPPLIED FROM MAV]
	TP00351-51	FUSE HOLDER	2	
■	VEP06D56F	MAIN C. B. A.		[SUPPLIED FROM MAV]
				(RTL) NV-SJ400PMP
B7751	CR2354-1GUF	LITHIUM BATTERY	1	
⚠ C1120	ECQU2A333MVA	P. CAPACITOR 250V 0. 033U	1	[SUPPLIED FROM MAV]
⚠ C1121, 22	ECKMNA331MBV	CERAMIC CAPACITOR	2	[SUPPLIED FROM MAV]
⚠ C1123	ECKMNA102MEV	CERAMIC CAPACITOR	1	[SUPPLIED FROM MAV]
C1140	ECEC2GG680	E. CAPACITOR 400V 68U	1	
C1151	ECQB1H473JF	P. CAPACITOR 50V 0. 047U	1	
C1152	ECQB1H103JF	P. CAPACITOR 50V 0. 01U	1	
C1153	ECQV1H104JM	P. CAPACITOR 50V 0. 1U	1	
C1154	ECQB1H223JF	P. CAPACITOR 50V 0. 022U	1	
C1155	ECKN3A271KBP	CERAMIC CAPACITOR	1	[SUPPLIED FROM MAV]
C1200	ECQV1H104JM	P. CAPACITOR 50V 0. 1U	1	
C1210	ECKN3A272KBP	CERAMIC CAPACITOR	1	[SUPPLIED FROM MAV]
C1230	VCEA1HJB560	E. CAPACITOR 50V 56U	1	[SUPPLIED FROM MAV]
C1250	VCEA1CJB681	E. CAPACITOR 16V 680U	1	[SUPPLIED FROM MAV]
C1251	VCEA1CEC471	E. CAPACITOR 16V 470U	1	
C1260	VCEA1AJH681	E. CAPACITOR 10V 680U	1	
C1261	VCEA1AEC221	E. CAPACITOR 10V 220U	1	[SUPPLIED FROM MAV]
C1270	VCEA1HJB560	E. CAPACITOR 50V 56U	1	[SUPPLIED FROM MAV]
C1280	VCEA1AJB181	E. CAPACITOR 10V 180U	1	[SUPPLIED FROM MAV]
C1341	ECUM1H103KBN	C. CAPACITOR CH 50V 0. 01U	1	
C1342	VCEA1ECB4R7	E. CAPACITOR 25V 4. 7U	1	
C1343	ECUM1E104KBN	C. CAPACITOR CH 25V 0. 1U	1	
C1351	ECUM1E104KBN	C. CAPACITOR CH 25V 0. 1U	1	
C1352	VCEA0JCB470	E. CAPACITOR 6. 3V 47U	1	
C2001	ECUM1H330JCN	C. CAPACITOR CH 50V 33P	1	
C2003	ECUM1C474ZFN	C. CAPACITOR CH 16V 0. 47U	1	
C2051	ECEA0JKN220	E. CAPACITOR 6. 3V 22U	1	
C2053	VCEA1HCB3R3	E. CAPACITOR 50V 3. 3U	1	
C2054	ECUM1H392KBN	C. CAPACITOR CH 50V 3900P	1	
C2055	ECUM1H104ZFN	C. CAPACITOR CH 50V 0. 1U	1	
C2099	ECUM1H681JCN	C. CAPACITOR CH 50V 680P	1	
C2501-03	VCEA1VBB4R7	E. CAPACITOR 35V 4. 7U	3	
C2504	ECUM1E683KBN	C. CAPACITOR CH 25V 0. 068U	1	
C2505-07	ECUM1C154KBN	C. CAPACITOR CH 16V 0. 15U	3	
C2508	ECUM1H473ZFN	C. CAPACITOR CH 50V 0. 047U	1	
C2509	ECUM1H104ZFN	C. CAPACITOR CH 50V 0. 1U	1	
C2510	VCEA0JCB221	E. CAPACITOR 6. 3V 220U	1	
C2551	ECUM1E563KBN	C. CAPACITOR CH 25V 0. 056U	1	
C2552	ECUM1H563ZFN	C. CAPACITOR CH 50V 0. 056U	1	
C2561	ECUM1E563KBN	C. CAPACITOR CH 25V 0. 056U	1	
C2562	ECUM1H103ZFN	C. CAPACITOR CH 50V 0. 01U	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C2571	VCEA1CCB470	E. CAPACITOR 16V 47U	1	
C3001	ECUM1E104KBN	C. CAPACITOR CH 25V 0. 1U	1	
C3002	ECUM1H151JCN	C. CAPACITOR CH 50V 150P	1	
C3003	ECUM1E104KBN	C. CAPACITOR CH 25V 0. 1U	1	
C3004	ECUM1H180JCN	C. CAPACITOR CH 50V 18P	1	
C3005	ECUM1E104KBN	C. CAPACITOR CH 25V 0. 1U	1	
C3006	ECUM1H473KBN	C. CAPACITOR CH 50V 0. 047U	1	
C3007, 08	ECUM1E104KBN	C. CAPACITOR CH 25V 0. 1U	2	
C3010	VCEA1ECB3R3	E. CAPACITOR 25V 3. 3U	1	[SUPPLIED FROM MAV]
C3011, 12	VCEA1HCB010	E. CAPACITOR 50V 1U	2	
C3013	VCEA1HCB2R2	E. CAPACITOR 50V 2. 2U	1	
C3014	VCEA1HCB010	E. CAPACITOR 50V 1U	1	
C3015	ECUM1E104KBN	C. CAPACITOR CH 25V 0. 1U	1	
C3016	VCEA0JCB470	E. CAPACITOR 6. 3V 47U	1	
C3017	ECUM1C224KBN	C. CAPACITOR CH 16V 0. 22U	1	
C3018	ECUM1E104KBN	C. CAPACITOR CH 25V 0. 1U	1	
C3019	ECUM1H103ZFN	C. CAPACITOR CH 50V 0. 01U	1	
C3021	ECUM1H270JCN	C. CAPACITOR CH 50V 27P	1	
C3022	ECUM1H102KBN	C. CAPACITOR CH 50V 1000P	1	
C3023	ECUM1A335KBN	C. CAPACITOR CH 10V 3. 3U	1	
C3024	ECUM1H040CCN	C. CAPACITOR CH 50V 4P	1	
C3025	ECUM1H223KBN	C. CAPACITOR CH 50V 0. 022U	1	
C3026	VCEA0JCB470	E. CAPACITOR 6. 3V 47U	1	
C3027	ECUM1C224KBN	C. CAPACITOR CH 16V 0. 22U	1	
C3028	ECUM1H472KBN	C. CAPACITOR CH 50V 4700P	1	
C3029	ECUM1E104KBN	C. CAPACITOR CH 25V 0. 1U	1	
C3030	ECUM1E333KBN	C. CAPACITOR CH 25V 0. 033U	1	
C3031	ECUM0J475VBN	C. CAPACITOR CH 6. 3V 4. 7U	1	
C3032	ECUM1C474KBN	C. CAPACITOR CH 16V 0. 47U	1	
C3033	ECUM1A225KBN	C. CAPACITOR CH 10V 2. 2U	1	
C3034	VCEA1CCB100	E. CAPACITOR 16V 10U	1	
C3035	ECUM1H103KBN	C. CAPACITOR CH 50V 0. 01U	1	
C3036	VCEA1ECB4R7	E. CAPACITOR 25V 4. 7U	1	
C3037	ECUM1E104KBN	C. CAPACITOR CH 25V 0. 1U	1	
C3038	VCEA1CCB100	E. CAPACITOR 16V 10U	1	
C3039	VCEA0JCB470	E. CAPACITOR 6. 3V 47U	1	
C3040	ECUM1E104KBN	C. CAPACITOR CH 25V 0. 1U	1	
C3043	ECUM1H223KBN	C. CAPACITOR CH 50V 0. 022U	1	
C3044	ECUM1H151JCN	C. CAPACITOR CH 50V 150P	1	
C3045	ECUM1H241JCN	C. CAPACITOR CH 50V 240P	1	[SUPPLIED FROM MAV]
C3046	ECUM1H820JCN	C. CAPACITOR CH 50V 82P	1	
C3048	ECUM1H103ZFN	C. CAPACITOR CH 50V 0. 01U	1	
C3049	ECUM1H681JCN	C. CAPACITOR CH 50V 680P	1	
C3150	ECUM1H101JCN	C. CAPACITOR CH 50V 100P	1	
C3201	VCEA0JEC471	E. CAPACITOR 6. 3V 470U	1	
C4010	VCEA1CCB100	E. CAPACITOR 16V 10U	1	
C4011	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
C4012	ECUM1E104KBN	C. CAPACITOR CH 25V 0. 1U	1	
C4041, 42	VCEA1ECB4R7	E. CAPACITOR 25V 4. 7U	2	
C4043	VCEA0JCB220	E. CAPACITOR 6. 3V 22U	1	
C4061	ECUM1H103KBN	C. CAPACITOR CH 50V 0. 01U	1	
C4062	VCEA0JCB330	E. CAPACITOR 6. 3V 33U	1	
C4063	VCEA1ECB3R3	E. CAPACITOR 25V 3. 3U	1	[SUPPLIED FROM MAV]
C4064, 65	ECUM1H182KBN	C. CAPACITOR CH 50V 1800P	2	
C4081	ECQB1H223JF	P. CAPACITOR 50V 0. 022U	1	
C4082	ECUM1H471JCN	C. CAPACITOR CH 50V 470P	1	
C4083	VCEA0JCB101	E. CAPACITOR 6. 3V 100U	1	
C4084	ECUM1H152KBN	C. CAPACITOR CH 50V 1500P	1	
C4085	ECUM1H223KBN	C. CAPACITOR CH 50V 0. 022U	1	
C4601	VCEA1CCB100	E. CAPACITOR 16V 10U	1	
C5002	ECUM1E104KBN	C. CAPACITOR CH 25V 0. 1U	1	
C5003	VCEA0JCB101	E. CAPACITOR 6. 3V 100U	1	
C5004	ECUM1E104KBN	C. CAPACITOR CH 25V 0. 1U	1	
C5005-10	ECUM1H103KBN	C. CAPACITOR CH 50V 0. 01U	6	
C6001, 02	ECUM1H180JCN	C. CAPACITOR CH 50V 18P	2	
C6003	ECUM1H220JCN	C. CAPACITOR CH 50V 22P	1	
C6004	ECUM1H180JCN	C. CAPACITOR CH 50V 18P	1	
C6005	VCEA1HCB3R3	E. CAPACITOR 50V 3. 3U	1	
C6006	ECUM1H101JCN	C. CAPACITOR CH 50V 100P	1	
C6007	ECUM1H820JCN	C. CAPACITOR CH 50V 82P	1	
C6008	ECUM1H471JCN	C. CAPACITOR CH 50V 470P	1	
C6009	ECUM1H103ZFN	C. CAPACITOR CH 50V 0. 01U	1	
C6010	ECUM1H060DCN	C. CAPACITOR CH 50V 6P	1	
C6013	ECUM1C105ZFN	C. CAPACITOR CH 16V 1U	1	
C6014	ECUM1H102KBN	C. CAPACITOR CH 50V 1000P	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
C6015	ECUM1E333KBN	C.CAPACITOR CH 25V 0.033U	1	
C6016	ECUM1H102KBN	C.CAPACITOR CH 50V 1000P	1	
C6017	ECUM1H561JCN	C.CAPACITOR CH 50V 560P	1	
C6020	ECUM1H182KBN	C.CAPACITOR CH 50V 1800P	1	
C6025	ECUM1H103KBN	C.CAPACITOR CH 50V 0.01U	1	
C6026	ECUM1H060DCN	C.CAPACITOR CH 50V 6P	1	
C6101-03	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	3	
C6106	ECUM1E104KBN	C.CAPACITOR CH 25V 0.1U	1	
C6108	ECUM1H272KBN	C.CAPACITOR CH 50V 2700P	1	
C6109	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C6111	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C6112,13	ECUM1H120JCN	C.CAPACITOR CH 50V 12P	2	
C6301,02	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	2	
C7401	VCEA1HCB010	E.CAPACITOR 50V 1U	1	
C7403	VCEA1CCB470	E.CAPACITOR 16V 47U	1	
C7405	VCEA1HJH560	E.CAPACITOR 50V 56U	1	
C7409	ECUM1H470JCN	C.CAPACITOR CH 50V 47P	1	
C7410	ECUM1H682KBN	C.CAPACITOR CH 50V 6800P	1	
C7411	ECUM1H103KBN	C.CAPACITOR CH 50V 0.01U	1	
C7416	VCEA0JCB470	E.CAPACITOR 6.3V 47U	1	
C7425	ECUM1H222KBN	C.CAPACITOR CH 50V 2200P	1	
C7427	ECUM1H471JCN	C.CAPACITOR CH 50V 470P	1	
C7501	VCEA1VCB100	E.CAPACITOR 35V 10U	1	[SUPPLIED FROM MAV]
C7502	ECUM1H100DCN	C.CAPACITOR CH 50V 10P	1	
C7601	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C7603	VCEA0JCB101	E.CAPACITOR 6.3V 100U	1	
C7604	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C7752	VCEA0JCB331	E.CAPACITOR 6.3V 330U	1	
⚠ D1110	ENC471D5ATRB	DIODE	1	
⚠ D1111	ENC471D5ATHB	DIODE	1	[SUPPLIED FROM MAV]
D1140	DF08S-6622	DIODE	1	[SUPPLIED FROM MAV]
D1152	1SS254	DIODE	1	
D1155	1SS254	DIODE	1	
D1157	MA4027L	DIODE	1	[SUPPLIED FROM MAV]
D1180	MA7470	DIODE	1	[SUPPLIED FROM MAV]
D1230	MA185	DIODE	1	
D1250,51	11EQS06	DIODE	2	
D1260	11EQS04	DIODE	1	
D1270	MA185	DIODE	1	
D1280	AU01Z	DIODE	1	
D1341	MA4130N-L	DIODE	1	[SUPPLIED FROM MAV]
D1351	MA4056N-H	DIODE	1	[SUPPLIED FROM MAV]
D1501	SIR505S	DIODE	1	
D2001,02	1SS254	DIODE	2	
D3501	1SS254	DIODE	1	
D3502	AU01Z	DIODE	1	
D6302	RB441P	DIODE	1	
D6305	MA4062N-L	DIODE	1	[SUPPLIED FROM MAV]
D6306	MA4056N-H	DIODE	1	[SUPPLIED FROM MAV]
D7402	MA4300N-M	DIODE	1	
D7501	MA4200N	DIODE	1	[SUPPLIED FROM MAV]
D7751,52	RB441P	DIODE	2	
D7753	1SS254	DIODE	1	
D7754	RB441P	DIODE	1	
DP7501	VSL0538-B	FLUORESCENT LAMP	1	[SUPPLIED FROM MAV]
⚠ DZ1110	VSQ1158	SURGE ABSORBER	1	
F1101	XBA2C16TB0	FUSE	1	
IC1200	UPC1093J	IC	1	
IC1511,12	RP1354N	IC	2	
IC2501	AN3811NK	IC	1	
IC3001	HA118421NF	IC	1	[SUPPLIED FROM MAV]
IC6001	M3777AVFFR	IC	1	[SUPPLIED FROM MAV]
IC6201	PST993E	IC	1	[SUPPLIED FROM MAV]
IC7501	M35502AFP	IC	1	
⚠ IP1280	VSF0015A04	IC PROTECTOR	1	
IR7501	PNA4611M08VT	PHOTO DIODE	1	[SUPPLIED FROM MAV]
JK3201	VJJ0679	PIN JACK 4-PIN	1	[SUPPLIED FROM MAV]

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
JK3202	VJJ0681	PIN JACK 2-PIN	1	[SUPPLIED FROM MAV]
K1361	ERJ6GMZOR00	M.RESISTOR CH 1/10W 0	1	
K1521	ERJ6GMZOR00	M.RESISTOR CH 1/10W 0	1	
K3001	ERJ6GMZOR00	M.RESISTOR CH 1/10W 0	1	
K3011	ERJ6GMZOR00	M.RESISTOR CH 1/10W 0	1	
K4651	ERJ6GMZOR00	M.RESISTOR CH 1/10W 0	1	
K6001-03	ERJ6GMZOR00	M.RESISTOR CH 1/10W 0	3	
K6008	ERJ6GMZOR00	M.RESISTOR CH 1/10W 0	1	
K7403	ERJ6GMZOR00	M.RESISTOR CH 1/10W 0	1	
K7502	ERJ6GMZOR00	M.RESISTOR CH 1/10W 0	1	
⚠ L1120,21	VLF1349N0R5	LINE FILTER	2	
L1250	VLQ0655K220	COIL 22UH	1	
L1260	VLQ0655K220	COIL 22UH	1	
L2501	VLQ0822J221	COIL 220UH	1	[SUPPLIED FROM MAV]
L3002	VLQ0599J271	COIL 270UH	1	
L3003	VLQ0822J150	COIL 15UH	1	[SUPPLIED FROM MAV]
L3004	VLQ0599J390	COIL 39UH	1	
L3005	VLQ0163J120	COIL 12UH	1	
L3006	VLQ0599J390	COIL 39UH	1	
L3007	VLQ0599J560	COIL 56UH	1	
L3008	VLQ0822J560	COIL 56UH	1	[SUPPLIED FROM MAV]
L3010	VLQ0599J120	COIL 12UH	1	
L3011	VLQ0599J121	COIL 120UH	1	
L3012	VLQ0599J120	COIL 12UH	1	
L3013	VLQ0599J101	COIL 100UH	1	
L4081	ELESE471KA	INDUCTOR 470UH	1	
L5001	VLQ0599J560	COIL 56UH	1	
L6001	VLQ0599J5R6	COIL 5.6UH	1	[SUPPLIED FROM MAV]
L6002	VLQ0599J820	COIL 82UH	1	
L6004	VLQ0599J1R5	COIL 1.5UH	1	
L7401	VLQ0822J100	COIL 10UH	1	[SUPPLIED FROM MAV]
L7405	VLQ0822J560	COIL 56UH	1	[SUPPLIED FROM MAV]
L7410	VLQ0599J820	COIL 82UH	1	
LB1120	VLP0056	FERRITE BEAD	1	
LB1210	VLP0056	FERRITE BEAD	1	
LB5001-03	VLP0145	COIL	3	
LB5004-06	ERJ6GMZOR00	M.RESISTOR CH 1/10W 0	3	
LB6101	ERJ6GMZOR00	M.RESISTOR CH 1/10W 0	1	
LR1150	VLP0392	COIL	1	[SUPPLIED FROM MAV]
⚠ P1102	VJP2073	CONNECTOR (MALE) 3P	1	
P1531	VJS3837A002	CONNECTOR (FEMALE) 2P	1	
P2502	VJS3537A009G	CONNECTOR (FEMALE) 9P	1	
P2571	VJP3835A012	CONNECTOR (MALE) 12P	1	
P4001	VJS3837A002	CONNECTOR (FEMALE) 2P	1	
P4002	VJS3537A006G	CONNECTOR (FEMALE) 6P	1	
P5001	VJS3537A010G	CONNECTOR (FEMALE) 10P	1	
Q1150	2SK2645	TRANSISTOR	1	
Q1151	2SD1992A-R	TRANSISTOR	1	
Q1152	2SC3311A-S	TRANSISTOR	1	[SUPPLIED FROM MAV]
Q1153	2SK2876	TRANSISTOR	1	
⚠ Q1200	PC123ZY2	PHOTO COUPLER	1	
Q1341	2SD1994A-S	TRANSISTOR	1	
Q1342	2SD601A	TRANSISTOR	1	
Q1351	2SC1959-Y	TRANSISTOR	1	[SUPPLIED FROM MAV]
Q1354	2SC1959-Y	TRANSISTOR	1	[SUPPLIED FROM MAV]
Q1501	PNB2301MBV	TRANSISTOR	1	
Q1502	PNB2301MAV	TRANSISTOR	1	
Q3001	2SB709A	TRANSISTOR	1	
Q3002,03	2SD601A	TRANSISTOR	2	
Q3004	2SB709A	TRANSISTOR	1	
Q3005	2SD601A	TRANSISTOR	1	
Q3202	2SB709A	TRANSISTOR	1	
Q4081	2SD602A-R	TRANSISTOR	1	
Q4082	2SD1149	TRANSISTOR	1	
Q4083	2SD601A	TRANSISTOR	1	
Q4084	2SB710A	TRANSISTOR	1	
Q6305,06	2SD601A	TRANSISTOR	2	
QR1342	MUN2112	TRANSISTOR-RESISTOR	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
QR3150, 51	MUN2213	TRANSISTOR-RESISTOR	2	
QR4081	MUN2111	TRANSISTOR-RESISTOR	1	
QR4082	MUN2213	TRANSISTOR-RESISTOR	1	
R1150	ERDS2TJ105	C. RESISTOR 1/4W 1M	1	
R1153	ERG2SJ331	M. RESISTOR 2W 330	1	
R1154	ERDS2TJ105	C. RESISTOR 1/4W 1M	1	
R1155	ERDS2TJ104	C. RESISTOR 1/4W 100K	1	
R1156	ERDS2TJ330	C. RESISTOR 1/4W 33	1	
R1157	EROS2CKG1601	M. RESISTOR 1/4W 1.6K	1	
R1158	ERDS2TJ331	C. RESISTOR 1/4W 330	1	
R1159	ERDS2TJ3R3	C. RESISTOR 1/4W 3.3	1	
R1160	ERX1SJR51	M. RESISTOR 1W 0.51	1	
R1161	ERDS2TJ101	C. RESISTOR 1/4W 100	1	
R1162	ERDS2TJ102	C. RESISTOR 1/4W 1K	1	
R1163	ERDS2TJ101	C. RESISTOR 1/4W 100	1	
R1200	ERJ6RBD103	M. RESISTOR CH 1/10W 10K	1	
R1202	ERJ6RBD222	M. RESISTOR CH 1/10W 2.2K	1	
R1203	ERJ6RBD303	M. RESISTOR CH 1/10W 30K	1	
R1204	ERDS2TJ123	C. RESISTOR 1/4W 12K	1	
R1205	ERJ6GMYJ222	M. RESISTOR CH 1/10W 2.2K	1	
R1206	ERJ6GMYJ271	M. RESISTOR CH 1/10W 270	1	
R1280	ERG2SJ100	M. RESISTOR 2W 10	1	
R1341	ERDS2TJ103	C. RESISTOR 1/4W 10K	1	
R1342	ERJ6GMYJ104	M. RESISTOR CH 1/10W 100K	1	
R1351	ERDS2TJ471	C. RESISTOR 1/4W 470	1	
R1501	ERJ6GMYJ393	M. RESISTOR CH 1/10W 39K	1	
R1502	ERJ6GMYJ273	M. RESISTOR CH 1/10W 27K	1	
R1503	ERDS2TJ121	C. RESISTOR 1/4W 120	1	
R1508	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R1511, 12	ERJ6GMYJ273	M. RESISTOR CH 1/10W 27K	2	
R1513	ERJ6GMYJ181	M. RESISTOR CH 1/10W 180	1	
R2001	ERJ6GMYJ392	M. RESISTOR CH 1/10W 3.9K	1	
R2002	ERJ6GMYJ105	M. RESISTOR CH 1/10W 1M	1	
R2099	ERJ6GMYJ682	M. RESISTOR CH 1/10W 6.8K	1	
R2504	ERJ6GEYJ1R5	M. RESISTOR CH 1/10W 1.5	1	[SUPPLIED FROM MAV]
R2505	ERJ6GEYJ1R2	M. RESISTOR CH 1/10W 1.2	1	
R2506	ERDS2TJ331	C. RESISTOR 1/4W 330	1	
R2507-09	ERDS2TJ330	C. RESISTOR 1/4W 33	3	
R2551, 52	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	2	
R2561	ERJ6GMYJ222	M. RESISTOR CH 1/10W 2.2K	1	
R2562	ERJ6GMYJ473	M. RESISTOR CH 1/10W 47K	1	
R3001	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R3002	ERJ6GMYJ153	M. RESISTOR CH 1/10W 15K	1	
R3004	ERJ6GMYJ152	M. RESISTOR CH 1/10W 1.5K	1	
R3005	ERJ6GMYJ822	M. RESISTOR CH 1/10W 8.2K	1	
R3006	ERJ6GMYJ152	M. RESISTOR CH 1/10W 1.5K	1	
R3007	ERJ6GMYJ112	M. RESISTOR CH 1/10W 1.1K	1	
R3008	ERJ6GMYJ152	M. RESISTOR CH 1/10W 1.5K	1	
R3011-13	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	3	
R3014	ERJ6GMYJ273	M. RESISTOR CH 1/10W 27K	1	
R3015	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R3016, 17	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	2	
R3018	ERJ6GMYJ272	M. RESISTOR CH 1/10W 2.7K	1	
R3019, 20	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	2	
R3022	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
R3024	ERJ6GMYJ222	M. RESISTOR CH 1/10W 2.2K	1	
R3026	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
R3029	ERJ6GMYJ392	M. RESISTOR CH 1/10W 3.9K	1	
R3030	ERJ6GMYJ183	M. RESISTOR CH 1/10W 18K	1	
R3031	ERJ6GMYJ561	M. RESISTOR CH 1/10W 560	1	
R3032	ERJ6GMYJ332	M. RESISTOR CH 1/10W 3.3K	1	
R3033	ERJ6GMYJ820	M. RESISTOR CH 1/10W 82	1	
R3034	ERJ6GMYJ275	M. RESISTOR CH 1/10W 2.7M	1	
R3035	ERJ6GMYJ395	M. RESISTOR CH 1/10W 3.9M	1	
R3036	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R3038	ERJ6GMYJ684	M. RESISTOR CH 1/10W 680K	1	
R3150	ERJ6GMYJ822	M. RESISTOR CH 1/10W 8.2K	1	
R3151	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R3202	ERDS2TJ681	C. RESISTOR 1/4W 680	1	
R3203	ERJ6GMYJ271	M. RESISTOR CH 1/10W 270	1	
R3211, 12	ERJ6GMYJ750	M. RESISTOR CH 1/10W 75	2	
R3514, 15	ERJ6GMYJ222	M. RESISTOR CH 1/10W 2.2K	2	
R3516	ERJ6GMYJ473	M. RESISTOR CH 1/10W 47K	1	
R3517	ERJ6GMYJ333	M. RESISTOR CH 1/10W 33K	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R3701	ERJ6GMYJ750	M. RESISTOR CH 1/10W 75	1	
R3702	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
R3902	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R3904	ERJ6GMYJ622	M. RESISTOR CH 1/10W 6.2K	1	
R4011	ERJ6GMYJ473	M. RESISTOR CH 1/10W 47K	1	
R4012	ERJ6GMYJ153	M. RESISTOR CH 1/10W 15K	1	
R4013, 14	ERJ6GMYJ682	M. RESISTOR CH 1/10W 6.8K	2	
R4015	ERJ6GMYJ183	M. RESISTOR CH 1/10W 18K	1	
R4016	ERJ6GMYJ473	M. RESISTOR CH 1/10W 47K	1	
R4017	ERJ6GMYJ682	M. RESISTOR CH 1/10W 6.8K	1	
R4061	ERJ6GMYJ334	M. RESISTOR CH 1/10W 330K	1	
R4062	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R4063	ERJ6GMYJ221	M. RESISTOR CH 1/10W 220	1	
R4071	ERJ6GMYJ153	M. RESISTOR CH 1/10W 15K	1	
R4081	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R4082	ERJ6GMYJ332	M. RESISTOR CH 1/10W 3.3K	1	
R4084, 85	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	2	
R4086, 87	ERJ6GMYJ222	M. RESISTOR CH 1/10W 2.2K	2	
R4526	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
R4527	ERJ6GMYJ221	M. RESISTOR CH 1/10W 220	1	
R4601	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
R4602	ERJ6GMYJ332	M. RESISTOR CH 1/10W 3.3K	1	
R4603	ERJ6GMYJ681	M. RESISTOR CH 1/10W 680	1	
R6001	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R6002	ERJ6GMYJ681	M. RESISTOR CH 1/10W 680	1	
R6003	ERJ6GMYJ274	M. RESISTOR CH 1/10W 270	1	
R6004	ERJ6GMYJ221	M. RESISTOR CH 1/10W 220	1	
R6006	ERJ6GMYJ183	M. RESISTOR CH 1/10W 18K	1	
R6007	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R6008	ERJ6GMYJ151	M. RESISTOR CH 1/10W 150	1	
R6009, 10	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	2	
R6011	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R6012	ERJ6GMYJ471	M. RESISTOR CH 1/10W 470	1	
R6013	ERJ6GMYJ105	M. RESISTOR CH 1/10W 1M	1	
R6017	ERJ6GMYJ222	M. RESISTOR CH 1/10W 2.2K	1	
R6018	ERJ6GMYJ473	M. RESISTOR CH 1/10W 47K	1	
R6023	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R6102	ERJ6GMYJ222	M. RESISTOR CH 1/10W 2.2K	1	
R6103	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R6104-07	ERJ6GMYJ221	M. RESISTOR CH 1/10W 220	4	
R6109, 10	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	2	
R6201	ERJ6GMYJ332	M. RESISTOR CH 1/10W 3.3K	1	
R6307	ERJ6GMYJ222	M. RESISTOR CH 1/10W 2.2K	1	
R6309	ERDS2TJ821	C. RESISTOR 1/4W 820	1	
R7401	ERDS2TJ102	C. RESISTOR 1/4W 1K	1	
R7402, 03	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	2	
R7502	ERJ6GMYJ472	M. RESISTOR CH 1/10W 4.7K	1	
R7503	ERJ6GMYJ223	M. RESISTOR CH 1/10W 22K	1	
R7504	ERJ6GMYJ682	M. RESISTOR CH 1/10W 6.8K	1	
R7505	ERJ6GMYJ123	M. RESISTOR CH 1/10W 12K	1	
R7506	ERJ6GMYJ223	M. RESISTOR CH 1/10W 22K	1	
R7507	ERJ6GMYJ563	M. RESISTOR CH 1/10W 56K	1	
R7508	ERJ6GMYJ183	M. RESISTOR CH 1/10W 18K	1	
R7509	ERDS2TJ681	C. RESISTOR 1/4W 680	1	
R7510	ERJ6GMYJ183	M. RESISTOR CH 1/10W 18K	1	
R7511	ERJ6GMYJ182	M. RESISTOR CH 1/10W 1.8K	1	
R7512	ERJ6GMYJ332	M. RESISTOR CH 1/10W 3.3K	1	
R7513	ERJ6GMYJ472	M. RESISTOR CH 1/10W 4.7K	1	
R7514	ERJ6GMYJ682	M. RESISTOR CH 1/10W 6.8K	1	
R7515	ERJ6GMYJ183	M. RESISTOR CH 1/10W 18K	1	
R7516	ERJ6GMYJ182	M. RESISTOR CH 1/10W 1.8K	1	
R7517	ERJ6GMYJ332	M. RESISTOR CH 1/10W 3.3K	1	
R7518	ERJ6GMYJ123	M. RESISTOR CH 1/10W 12K	1	
R7601	ERJ6GMYJ101	M. RESISTOR CH 1/10W 100	1	
R7602	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R7751	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
S1531	VES0834	S-TAB SWITCH	1	
S1532	VSS0520	MODE SELECT SWITCH	1	
S7401	VSS0530	AV SELECT SWITCH	1	
S7501	EVQPC105K	SWITCH	1	[SUPPLIED FROM MAV]
S7502, 03	EVQ11L07B	SWITCH	2	
S7505	EVQ11G04M	SWITCH	1	[SUPPLIED FROM MAV]
S7506	EVQ11L07B	SWITCH	1	
S7509, 10	EVQ11L07B	SWITCH	2	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
S7512	EVQ11L07B	SWITCH	1	
S7513	EVQ11G04M	SWITCH	1	[SUPPLIED FROM MAV]
S7514-16	EVQ11L07B	SWITCH	3	
⚠ T1150	VLT0967	SWITCHING TRANSFORMER	1	[SUPPLIED FROM MAV]
T4081	VLT0895	TRANSFORMER	1	
⚠ TU7401	ENG56714G1	TUNER	1	[SUPPLIED FROM MAV]
W504	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
W506-09	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	4	
W511-16	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	6	
W518, 19	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	2	
W523, 24	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	2	
X3002	VSX1089	CRYSTAL OSCILLATOR	1	[SUPPLIED FROM MAV]
X6001	VSX0995	CRYSTAL OSCILLATOR	1	
X6002	VSX0914	CRYSTAL OSCILLATOR	1	[SUPPLIED FROM MAV]
		MISCELLANEOUS		
	VSC4998	HA ANGLE	1	[SUPPLIED FROM MAV]
	TP00351-51	FUSE HOLDER	2	
■	VEP08D56M	MAIN C. B. A.		[SUPPLIED FROM MAV]
				(RTL) NV-FJ600PM
B7751	CR2354-1GUF	LITHIUM BATTERY	1	
⚠ C1120	ECQU2A333MVA	P. CAPACITOR 250V 0. 033U	1	[SUPPLIED FROM MAV]
⚠ C1121, 22	ECKMNA331MBV	CERAMIC CAPACITOR	2	[SUPPLIED FROM MAV]
⚠ C1123	ECKMNA102MEV	CERAMIC CAPACITOR	1	[SUPPLIED FROM MAV]
C1140	ECEC2GG680	E. CAPACITOR 400V 68U	1	
C1151	ECQB1H473JF	P. CAPACITOR 50V 0. 047U	1	
C1152	ECQB1H103JF	P. CAPACITOR 50V 0. 01U	1	
C1153	ECQV1H104JM	P. CAPACITOR 50V 0. 1U	1	
C1154	ECQB1H223JF	P. CAPACITOR 50V 0. 022U	1	
C1155	ECKN3A271KBP	CERAMIC CAPACITOR	1	[SUPPLIED FROM MAV]
C1200	ECQV1H104JM	P. CAPACITOR 50V 0. 1U	1	
C1210	ECKN3A272KBP	CERAMIC CAPACITOR	1	[SUPPLIED FROM MAV]
C1230	VCEA1HJB560	E. CAPACITOR 50V 56U	1	[SUPPLIED FROM MAV]
C1250	VCEA1CJB681	E. CAPACITOR 16V 680U	1	[SUPPLIED FROM MAV]
C1251	VCEA1CEC471	E. CAPACITOR 16V 470U	1	
C1260	VCEA1AJH681	E. CAPACITOR 10V 680U	1	
C1261	VCEA1AEC221	E. CAPACITOR 10V 220U	1	[SUPPLIED FROM MAV]
C1270	VCEA1HJB560	E. CAPACITOR 50V 56U	1	[SUPPLIED FROM MAV]
C1280	VCEA1AJB181	E. CAPACITOR 10V 180U	1	[SUPPLIED FROM MAV]
C1341	ECUM1H103KBN	C. CAPACITOR CH 50V 0. 01U	1	
C1342	VCEA1ECB4R7	E. CAPACITOR 25V 4. 7U	1	
C1343	ECUM1E104KBN	C. CAPACITOR CH 25V 0. 1U	1	
C1351	ECUM1E104KBN	C. CAPACITOR CH 25V 0. 1U	1	
C1352	VCEA0JCB470	E. CAPACITOR 6. 3V 47U	1	
C2001	ECUM1H330JCN	C. CAPACITOR CH 50V 33P	1	
C2003	ECUM1C474ZFN	C. CAPACITOR CH 16V 0. 47U	1	
C2051	ECEA0JKN220	E. CAPACITOR 6. 3V 22U	1	
C2053	VCEA1HCB3R3	E. CAPACITOR 50V 3. 3U	1	
C2054	ECUM1H392KBN	C. CAPACITOR CH 50V 3900P	1	
C2055	ECUM1H104ZFN	C. CAPACITOR CH 50V 0. 1U	1	
C2099	ECUM1H681JCN	C. CAPACITOR CH 50V 680P	1	
C2501-03	VCEA1VBB4R7	E. CAPACITOR 35V 4. 7U	3	
C2504	ECUM1E683KBN	C. CAPACITOR CH 25V 0. 068U	1	
C2505-07	ECUM1C154KBN	C. CAPACITOR CH 16V 0. 15U	3	
C2508	ECUM1H473ZFN	C. CAPACITOR CH 50V 0. 047U	1	
C2509	ECUM1H104ZFN	C. CAPACITOR CH 50V 0. 1U	1	
C2510	VCEA0JCB221	E. CAPACITOR 6. 3V 220U	1	
C2551	ECUM1E563KBN	C. CAPACITOR CH 25V 0. 056U	1	
C2552	ECUM1H563ZFN	C. CAPACITOR CH 50V 0. 056U	1	
C2561	ECUM1E563KBN	C. CAPACITOR CH 25V 0. 056U	1	
C2571	VCEA1CCB470	E. CAPACITOR 16V 47U	1	
C3001	ECUM1E104KBN	C. CAPACITOR CH 25V 0. 1U	1	
C3002	ECUM1H151JCN	C. CAPACITOR CH 50V 150P	1	
C3003	ECUM1E104KBN	C. CAPACITOR CH 25V 0. 1U	1	
C3004	ECUM1H180JCN	C. CAPACITOR CH 50V 18P	1	
C3005	ECUM1E104KBN	C. CAPACITOR CH 25V 0. 1U	1	
C3006	ECUM1H473KBN	C. CAPACITOR CH 50V 0. 047U	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C3007, 08	ECUM1E104KBN	C. CAPACITOR CH 25V 0. 1U	2	
C3010	VCEA1ECB3R3	E. CAPACITOR 25V 3. 3U	1	[SUPPLIED FROM MAV]
C3011, 12	VCEA1HCB010	E. CAPACITOR 50V 1U	2	
C3013	VCEA1HCB2R2	E. CAPACITOR 50V 2. 2U	1	
C3014	VCEA1HCB010	E. CAPACITOR 50V 1U	1	
C3015	ECUM1E104KBN	C. CAPACITOR CH 25V 0. 1U	1	
C3016	VCEA0JCB470	E. CAPACITOR 6. 3V 47U	1	
C3017	ECUM1C224KBN	C. CAPACITOR CH 16V 0. 22U	1	
C3018	ECUM1E104KBN	C. CAPACITOR CH 25V 0. 1U	1	
C3019	ECUM1H103ZFN	C. CAPACITOR CH 50V 0. 01U	1	
C3021	ECUM1H270JCN	C. CAPACITOR CH 50V 27P	1	
C3022	ECUM1H102KBN	C. CAPACITOR CH 50V 1000P	1	
C3023	ECUM1A335KBN	C. CAPACITOR CH 10V 3. 3U	1	
C3024	ECUM1H040CCN	C. CAPACITOR CH 50V 4P	1	
C3025	ECUM1H223KBN	C. CAPACITOR CH 50V 0. 022U	1	
C3026	VCEA0JCB470	E. CAPACITOR 6. 3V 47U	1	
C3027	ECUM1C224KBN	C. CAPACITOR CH 16V 0. 22U	1	
C3028	ECUM1H472KBN	C. CAPACITOR CH 50V 4700P	1	
C3029	ECUM1E104KBN	C. CAPACITOR CH 25V 0. 1U	1	
C3030	ECUM1E333KBN	C. CAPACITOR CH 25V 0. 033U	1	
C3031	ECUM0J475VBN	C. CAPACITOR CH 6. 3V 4. 7U	1	
C3032	ECUM1C474KBN	C. CAPACITOR CH 16V 0. 47U	1	
C3033	ECUM1A225KBN	C. CAPACITOR CH 10V 2. 2U	1	
C3034	VCEA1CCB100	E. CAPACITOR 16V 10U	1	
C3035	ECUM1H103KBN	C. CAPACITOR CH 50V 0. 01U	1	
C3036	VCEA1ECB4R7	E. CAPACITOR 25V 4. 7U	1	
C3037	ECUM1E104KBN	C. CAPACITOR CH 25V 0. 1U	1	
C3038	VCEA1CCB100	E. CAPACITOR 16V 10U	1	
C3039	VCEA0JCB470	E. CAPACITOR 6. 3V 47U	1	
C3040	ECUM1E104KBN	C. CAPACITOR CH 25V 0. 1U	1	
C3043	ECUM1H223KBN	C. CAPACITOR CH 50V 0. 022U	1	
C3044	ECUM1H151JCN	C. CAPACITOR CH 50V 150P	1	
C3045	ECUM1H241JCN	C. CAPACITOR CH 50V 240P	1	[SUPPLIED FROM MAV]
C3046	ECUM1H820JCN	C. CAPACITOR CH 50V 82P	1	
C3048	ECUM1H103ZFN	C. CAPACITOR CH 50V 0. 01U	1	
C3049	ECUM1H681JCN	C. CAPACITOR CH 50V 680P	1	
C3150	ECUM1H101JCN	C. CAPACITOR CH 50V 100P	1	
C3201	VCEA0JEC471	E. CAPACITOR 6. 3V 470U	1	
C4010	VCEA1CCB100	E. CAPACITOR 16V 10U	1	
C4012	ECUM1E104KBN	C. CAPACITOR CH 25V 0. 1U	1	
C4041, 42	VCEA1ECB4R7	E. CAPACITOR 25V 4. 7U	2	
C4043	VCEA0JCB220	E. CAPACITOR 6. 3V 22U	1	
C4061	ECUM1H103KBN	C. CAPACITOR CH 50V 0. 01U	1	
C4062	VCEA0JCB330	E. CAPACITOR 6. 3V 33U	1	
C4063	VCEA1ECB3R3	E. CAPACITOR 25V 3. 3U	1	[SUPPLIED FROM MAV]
C4064, 65	ECUM1H182KBN	C. CAPACITOR CH 50V 1800P	2	
C4081	ECQB1H223JF	P. CAPACITOR 50V 0. 022U	1	
C4082	ECUM1H471JCN	C. CAPACITOR CH 50V 470P	1	
C4083	VCEA0JCB101	E. CAPACITOR 6. 3V 100U	1	
C4084	ECUM1H152KBN	C. CAPACITOR CH 50V 1500P	1	
C4085	ECUM1H223KBN	C. CAPACITOR CH 50V 0. 022U	1	
C4502-04	VCEA1CAW100	E. CAPACITOR 16V 10U	3	
C4505	VCEA0JAW330	E. CAPACITOR 6. 3V 33U	1	
C4506	VCEA1CAW100	E. CAPACITOR 16V 10U	1	
C4507	VCEA0JAW220	E. CAPACITOR 6. 3V 22U	1	[SUPPLIED FROM MAV]
C4508	ECUM1E333KBN	C. CAPACITOR CH 25V 0. 033U	1	
C4509, 10	ECUM1H103ZFN	C. CAPACITOR CH 50V 0. 01U	2	
C4511	ECUM1E104KBN	C. CAPACITOR CH 25V 0. 1U	1	
C4512	ECUM1C224KBN	C. CAPACITOR CH 16V 0. 22U	1	
C4513	VCEA0JAW220	E. CAPACITOR 6. 3V 22U	1	[SUPPLIED FROM MAV]
C4514	VCEA1CAW100	E. CAPACITOR 16V 10U	1	
C4515	VCEA0JAW330	E. CAPACITOR 6. 3V 33U	1	
C4516	VCEA1CCB100	E. CAPACITOR 16V 10U	1	
C4517	VCEA0JAW101	E. CAPACITOR 6. 3V 100U	1	
C4519, 20	VCEA1CAW100	E. CAPACITOR 16V 10U	2	
C4521	VCEA1CCB100	E. CAPACITOR 16V 10U	1	
C4522	VCEA0JCB220	E. CAPACITOR 6. 3V 22U	1	
C4524	ECUM1E104KBN	C. CAPACITOR CH 25V 0. 1U	1	
C4525	VCEA1CAW470	E. CAPACITOR 16V 47U	1	
C4534, 35	ECQB1H153JF	P. CAPACITOR 50V 0. 015U	2	
C4536	ECUM1H103KBN	C. CAPACITOR CH 50V 0. 01U	1	
C4537	ECUM1H560GCN	C. CAPACITOR CH 50V 56P	1	
C4538	ECUM1H103KBN	C. CAPACITOR CH 50V 0. 01U	1	
C4561	VCEA1CCB100	E. CAPACITOR 16V 10U	1	
C4562	VCEA1HCB010	E. CAPACITOR 50V 1U	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C4563	ECUM1E104KBN	C. CAPACITOR CH 25V 0. 1U	1	
C4565	ECUM1E104KBN	C. CAPACITOR CH 25V 0. 1U	1	
C4567	VCEA1HCB3R3	E. CAPACITOR 50V 3. 3U	1	
C4568	ECUM1H103KBN	C. CAPACITOR CH 50V 0. 01U	1	
C4569-71	ECUM1E104KBN	C. CAPACITOR CH 25V 0. 1U	3	
C4572	VCEA1HCB2R2	E. CAPACITOR 50V 2. 2U	1	
C4573	ECUM1H223KBN	C. CAPACITOR CH 50V 0. 022U	1	
C4574	VCEA1HCB3R3	E. CAPACITOR 50V 3. 3U	1	
C4601	VCEA1CCB100	E. CAPACITOR 16V 10U	1	
C4603	ECUM1H681JCN	C. CAPACITOR CH 50V 680P	1	
C5002	ECUM1E104KBN	C. CAPACITOR CH 25V 0. 1U	1	
C5003	VCEA0JCB101	E. CAPACITOR 6. 3V 100U	1	
C5004	ECUM1E104KBN	C. CAPACITOR CH 25V 0. 1U	1	
C5005-10	ECUM1H103KBN	C. CAPACITOR CH 50V 0. 01U	6	
C6001, 02	ECUM1H180JCN	C. CAPACITOR CH 50V 18P	2	
C6003	ECUM1H220JCN	C. CAPACITOR CH 50V 22P	1	
C6004	ECUM1H180JCN	C. CAPACITOR CH 50V 18P	1	
C6005	VCEA1HCB3R3	E. CAPACITOR 50V 3. 3U	1	
C6006	ECUM1H101JCN	C. CAPACITOR CH 50V 100P	1	
C6007	ECUM1H820JCN	C. CAPACITOR CH 50V 82P	1	
C6008	ECUM1H471JCN	C. CAPACITOR CH 50V 470P	1	
C6009	ECUM1H103ZFN	C. CAPACITOR CH 50V 0. 01U	1	
C6010	ECUM1H060DCN	C. CAPACITOR CH 50V 6P	1	
C6013	ECUM1C105ZFN	C. CAPACITOR CH 16V 1U	1	
C6014	ECUM1H102KBN	C. CAPACITOR CH 50V 1000P	1	
C6015	ECUM1E333KBN	C. CAPACITOR CH 25V 0. 033U	1	
C6016	ECUM1H102KBN	C. CAPACITOR CH 50V 1000P	1	
C6017	ECUM1H561JCN	C. CAPACITOR CH 50V 560P	1	
C6020	ECUM1H182KBN	C. CAPACITOR CH 50V 1800P	1	
C6025	ECUM1H103KBN	C. CAPACITOR CH 50V 0. 01U	1	
C6026	ECUM1H060DCN	C. CAPACITOR CH 50V 6P	1	
C6101-03	ECUM1H104ZFN	C. CAPACITOR CH 50V 0. 1U	3	
C6106	ECUM1E104KBN	C. CAPACITOR CH 25V 0. 1U	1	
C6108	ECUM1H272KBN	C. CAPACITOR CH 50V 2700P	1	
C6109	ECUM1H104ZFN	C. CAPACITOR CH 50V 0. 1U	1	
C6111	ECUM1H104ZFN	C. CAPACITOR CH 50V 0. 1U	1	
C6112, 13	ECUM1H120JCN	C. CAPACITOR CH 50V 12P	2	
C6301, 02	ECUM1H103ZFN	C. CAPACITOR CH 50V 0. 01U	2	
C7401	VCEA1HCB010	E. CAPACITOR 50V 1U	1	
C7403	VCEA1CCB470	E. CAPACITOR 16V 47U	1	
C7405	VCEA1HJH560	E. CAPACITOR 50V 56U	1	
C7409	ECUM1H470JCN	C. CAPACITOR CH 50V 47P	1	
C7410	ECUM1H682KBN	C. CAPACITOR CH 50V 6800P	1	
C7411	ECUM1H103KBN	C. CAPACITOR CH 50V 0. 01U	1	
C7416	VCEA0JCB470	E. CAPACITOR 6. 3V 47U	1	
C7425	ECUM1H222KBN	C. CAPACITOR CH 50V 2200P	1	
C7427	ECUM1H471JCN	C. CAPACITOR CH 50V 470P	1	
C7501	VCEA1VCB100	E. CAPACITOR 35V 10U	1	[SUPPLIED FROM MAV]
C7502	ECUM1H100DCN	C. CAPACITOR CH 50V 10P	1	
C7601	ECUM1H103ZFN	C. CAPACITOR CH 50V 0. 01U	1	
C7603	VCEA0JCB101	E. CAPACITOR 6. 3V 100U	1	
C7604	ECUM1H104ZFN	C. CAPACITOR CH 50V 0. 1U	1	
C7752	VCEA0JCB331	E. CAPACITOR 6. 3V 330U	1	
⚠ D1110	ENC471D5ATRB	DIODE	1	
⚠ D1111	ENC471D5ATHB	DIODE	1	[SUPPLIED FROM MAV]
D1140	DF08S-6622	DIODE	1	[SUPPLIED FROM MAV]
D1152	1SS254	DIODE	1	
D1155	1SS254	DIODE	1	
D1157	MA4027L	DIODE	1	[SUPPLIED FROM MAV]
D1180	MA7470	DIODE	1	[SUPPLIED FROM MAV]
D1230	MA185	DIODE	1	
D1250, 51	11EQS06	DIODE	2	
D1260	11EQS04	DIODE	1	
D1270	MA185	DIODE	1	
D1280	AU01Z	DIODE	1	
D1341	MA4130N-L	DIODE	1	[SUPPLIED FROM MAV]
D1351	MA4056N-H	DIODE	1	[SUPPLIED FROM MAV]
D1501	SIR505S	DIODE	1	
D2001, 02	1SS254	DIODE	2	
D3501	1SS254	DIODE	1	
D3502	AU01Z	DIODE	1	
D4501	1SS254	DIODE	1	
D4507	1SS254	DIODE	1	
D4561	1SS254	DIODE	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
D6302	RB441P	DIODE	1	
D6305	MA4062N-L	DIODE	1	[SUPPLIED FROM MAV]
D6306	MA4056N-H	DIODE	1	[SUPPLIED FROM MAV]
D7402	MA4300N-M	DIODE	1	
D7501	MA4200N	DIODE	1	[SUPPLIED FROM MAV]
D7751, 52	RB441P	DIODE	2	
D7753	1SS254	DIODE	1	
D7754	RB441P	DIODE	1	
DP7501	VSL0538-B	FLUORESCENT LAMP	1	[SUPPLIED FROM. MAV]
⚠ DZ1110	VSQ1158	SURGE ABSORBER	1	
F1101	XBA2C16TB0	FUSE	1	
FL4561	EFCT4R5MS5W	FILTER	1	
IC1200	UPC1093J	IC	1	
IC1511, 12	RPI354N	IC	2	
IC2501	AN3811NK	IC	1	
IC3001	HA118421NF	IC	1	[SUPPLIED FROM MAV]
IC4501	AN3662FBP		1	[SUPPLIED FROM MAV]
IC6001	M3777AVFFR	IC	1	[SUPPLIED FROM MAV]
IC6201	PST993E	IC	1	[SUPPLIED FROM MAV]
IC7501	M35502AFP	IC	1	
⚠ IP1280	VSF0015A04	IC PROTECTOR	1	
IR7501	PNA4611M08VT	PHOTO DIODE	1	[SUPPLIED FROM MAV]
JK3201	VJJ0675	PIN JACK 3-PIN	1	[SUPPLIED FROM MAV]
JK3202	VJJ0680	PIN JACK 3-PIN	1	[SUPPLIED FROM MAV]
K1361	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
K1521	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
K3001	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
K3011	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
K4502	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
K6001-03	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	3	
K6008	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
K7502	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
⚠ L1120, 21	VLF1349N0R5	LINE FILTER	2	
L1250	VLQ0655K220	COIL 22UH	1	
L1260	VLQ0655K220	COIL 22UH	1	
L2501	VLQ0822J221	COIL 220UH	1	[SUPPLIED FROM MAV]
L3002	VLQ0599J271	COIL 270UH	1	
L3003	VLQ0822J150	COIL 15UH	1	[SUPPLIED FROM MAV]
L3004	VLQ0599J390	COIL 39UH	1	
L3005	VLQ0163J120	COIL 12UH	1	
L3006	VLQ0599J390	COIL 39UH	1	
L3007	VLQ0599J560	COIL 56UH	1	
L3008	VLQ0822J560	COIL 56UH	1	[SUPPLIED FROM MAV]
L3010	VLQ0599J120	COIL 12UH	1	
L3011	VLQ0599J121	COIL 120UH	1	
L3012	VLQ0599J120	COIL 12UH	1	
L3013	VLQ0599J101	COIL 100UH	1	
L4081	ELESE471KA	INDUCTOR 470UH	1	
L4501	VLQ0599J1R2	COIL 1. 2UH	1	[SUPPLIED FROM MAV]
L4502	VLQ0599J391	COIL 390UH	1	[SUPPLIED FROM MAV]
L5001	VLQ0599J560	COIL 56UH	1	
L6001	VLQ0599J5R6	COIL 5. 6UH	1	[SUPPLIED FROM MAV]
L6002	VLQ0599J820	COIL 82UH	1	
L6004	VLQ0599J1R5	COIL 1. 5UH	1	
L7401	VLQ0822J100	COIL 10UH	1	[SUPPLIED FROM MAV]
L7405	VLQ0822J560	COIL 56UH	1	[SUPPLIED FROM MAV]
L7410	VLQ0599J820	COIL 82UH	1	
LB1120	VLP0056	FERRITE BEAD	1	
LB1210	VLP0056	FERRITE BEAD	1	
LB5001-06	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	6	
LB6101	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
LR1150	VLP0392	COIL	1	[SUPPLIED FROM MAV]

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
⚠ P1102	VJP2073	CONNECTOR (MALE) 3P	1	
P1531	VJS3837A002	CONNECTOR (FEMALE) 2P	1	
P2502	VJS3537A009G	CONNECTOR (FEMALE) 9P	1	
P2571	VJP3835A012	CONNECTOR (MALE) 12P	1	
P4001	VJS3837A002	CONNECTOR (FEMALE) 2P	1	
P4002	VJS3537A006G	CONNECTOR (FEMALE) 6P	1	
P5001	VJS3537A010G	CONNECTOR (FEMALE) 10P	1	
Q1150	2SK2645	TRANSISTOR	1	
Q1151	2SD1992A-R	TRANSISTOR	1	
Q1152	2SC3311A-S	TRANSISTOR	1	[SUPPLIED FROM MAV]
Q1153	2SK2876	TRANSISTOR	1	
⚠ Q1200	PC123ZY2	PHOTO COUPLER	1	
Q1341	2SD1994A-S	TRANSISTOR	1	
Q1342	2SD601A	TRANSISTOR	1	
Q1351, 52	2SC1959-Y	TRANSISTOR	2	[SUPPLIED FROM MAV]
Q1354	2SC1959-Y	TRANSISTOR	1	[SUPPLIED FROM MAV]
Q1501	PNB2301MBV	TRANSISTOR	1	
Q1502	PNB2301MAV	TRANSISTOR	1	
Q3001	2SB709A	TRANSISTOR	1	
Q3002, 03	2SD601A	TRANSISTOR	2	
Q3004	2SB709A	TRANSISTOR	1	
Q3005	2SD601A	TRANSISTOR	1	
Q3202	2SB709A	TRANSISTOR	1	
Q4081	2SD602A-R	TRANSISTOR	1	
Q4082	2SD1149	TRANSISTOR	1	
Q4083	2SD601A	TRANSISTOR	1	
Q4084	2SB710A	TRANSISTOR	1	
Q4501	2SD601A	TRANSISTOR	1	
Q6305, 06	2SD601A	TRANSISTOR	2	
QR1342	MUN2112	TRANSISTOR-RESISTOR	1	
QR3150, 51	MUN2213	TRANSISTOR-RESISTOR	2	
QR4081	MUN2111	TRANSISTOR-RESISTOR	1	
QR4082	MUN2213	TRANSISTOR-RESISTOR	1	
QR4504	UN2115	TRANSISTOR	1	
QR4505, 06	UN2215	TRANSISTOR	2	
R1150	ERDS2TJ105	C. RESISTOR 1/4W 1M	1	
R1153	ERG2SJ331	M. RESISTOR 2W 330	1	
R1154	ERDS2TJ105	C. RESISTOR 1/4W 1M	1	
R1155	ERDS2TJ104	C. RESISTOR 1/4W 100K	1	
R1156	ERDS2TJ330	C. RESISTOR 1/4W 33	1	
R1157	EROS2CKG1601	M. RESISTOR 1/4W 1. 6K	1	
R1158	ERDS2TJ331	C. RESISTOR 1/4W 330	1	
R1159	ERDS2TJ3R3	C. RESISTOR 1/4W 3. 3	1	
R1160	ERX1SJR51	M. RESISTOR 1W 0. 51	1	
R1161	ERDS2TJ101	C. RESISTOR 1/4W 100	1	
R1162	ERDS2TJ102	C. RESISTOR 1/4W 1K	1	
R1163	ERDS2TJ101	C. RESISTOR 1/4W 100	1	
R1200	ERJ6RBD103	M. RESISTOR CH 1/10W 10K	1	
R1202	ERJ6RBD222	M. RESISTOR CH 1/10W 2. 2K	1	
R1203	ERJ6RBD303	M. RESISTOR CH 1/10W 30K	1	
R1204	ERDS2TJ123	C. RESISTOR 1/4W 12K	1	
R1205	ERJ6GMYJ222	M. RESISTOR CH 1/10W 2. 2K	1	
R1206	ERJ6GMYJ271	M. RESISTOR CH 1/10W 270	1	
R1280	ERG2SJ100	M. RESISTOR 2W 10	1	
R1341	ERDS2TJ103	C. RESISTOR 1/4W 10K	1	
R1342	ERJ6GMYJ104	M. RESISTOR CH 1/10W 100K	1	
R1351	ERDS2TJ471	C. RESISTOR 1/4W 470	1	
R1501	ERJ6GMYJ393	M. RESISTOR CH 1/10W 39K	1	
R1502	ERJ6GMYJ273	M. RESISTOR CH 1/10W 27K	1	
R1503	ERDS2TJ121	C. RESISTOR 1/4W 120	1	
R1508	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R1511, 12	ERJ6GMYJ273	M. RESISTOR CH 1/10W 27K	2	
R1513	ERJ6GMYJ181	M. RESISTOR CH 1/10W 180	1	
R2001	ERJ6GMYJ392	M. RESISTOR CH 1/10W 3. 9K	1	
R2002	ERJ6GMYJ105	M. RESISTOR CH 1/10W 1M	1	
R2099	ERJ6GMYJ682	M. RESISTOR CH 1/10W 6. 8K	1	
R2504	ERJ6GEYJ1R5	M. RESISTOR CH 1/10W 1. 5	1	[SUPPLIED FROM MAV]
R2505	ERJ6GEYJ1R2	M. RESISTOR CH 1/10W 1. 2	1	
R2506	ERDS2TJ331	C. RESISTOR 1/4W 330	1	
R2507-09	ERDS2TJ330	C. RESISTOR 1/4W 33	3	
R2551, 52	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	2	
R2561	ERJ6GMYJ222	M. RESISTOR CH 1/10W 2. 2K	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R2562	ERJ6GMYJ473	M. RESISTOR CH 1/10W 47K	1	
R3001	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R3002	ERJ6GMYJ153	M. RESISTOR CH 1/10W 15K	1	
R3004	ERJ6GMYJ152	M. RESISTOR CH 1/10W 1. 5K	1	
R3005	ERJ6GMYJ822	M. RESISTOR CH 1/10W 8. 2K	1	
R3006	ERJ6GMYJ152	M. RESISTOR CH 1/10W 1. 5K	1	
R3007	ERJ6GMYJ112	M. RESISTOR CH 1/10W 1. 1K	1	
R3008	ERJ6GMYJ152	M. RESISTOR CH 1/10W 1. 5K	1	
R3011-13	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	3	
R3014	ERJ6GMYJ273	M. RESISTOR CH 1/10W 27K	1	
R3015	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R3016, 17	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	2	
R3018	ERJ6GMYJ272	M. RESISTOR CH 1/10W 2. 7K	1	
R3019, 20	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	2	
R3022	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
R3024	ERJ6GMYJ222	M. RESISTOR CH 1/10W 2. 2K	1	
R3026	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
R3029	ERJ6GMYJ392	M. RESISTOR CH 1/10W 3. 9K	1	
R3030	ERJ6GMYJ183	M. RESISTOR CH 1/10W 18K	1	
R3031	ERJ6GMYJ561	M. RESISTOR CH 1/10W 560	1	
R3032	ERJ6GMYJ332	M. RESISTOR CH 1/10W 3. 3K	1	
R3033	ERJ6GMYJ820	M. RESISTOR CH 1/10W 82	1	
R3034	ERJ6GMYJ275	M. RESISTOR CH 1/10W 2. 7M	1	
R3035	ERJ6GMYJ395	M. RESISTOR CH 1/10W 3. 9M	1	
R3036	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R3038	ERJ6GMYJ684	M. RESISTOR CH 1/10W 680K	1	
R3150	ERJ6GMYJ822	M. RESISTOR CH 1/10W 8. 2K	1	
R3151	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R3202	ERDS2TJ681	C. RESISTOR 1/4W 680	1	
R3203	ERJ6GMYJ271	M. RESISTOR CH 1/10W 270	1	
R3211, 12	ERJ6GMYJ750	M. RESISTOR CH 1/10W 75	2	
R3514, 15	ERJ6GMYJ222	M. RESISTOR CH 1/10W 2. 2K	2	
R3516	ERJ6GMYJ473	M. RESISTOR CH 1/10W 47K	1	
R3517	ERJ6GMYJ333	M. RESISTOR CH 1/10W 33K	1	
R3701	ERJ6GMYJ750	M. RESISTOR CH 1/10W 75	1	
R3902	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R3904	ERJ6GMYJ622	M. RESISTOR CH 1/10W 6. 2K	1	
R4012	ERJ6GMYJ333	M. RESISTOR CH 1/10W 33K	1	
R4014	ERJ6GMYJ223	M. RESISTOR CH 1/10W 22K	1	
R4015	ERJ6GMYJ153	M. RESISTOR CH 1/10W 15K	1	
R4061	ERJ6GMYJ334	M. RESISTOR CH 1/10W 330K	1	
R4062	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R4063	ERJ6GMYJ221	M. RESISTOR CH 1/10W 220	1	
R4071	ERJ6GMYJ153	M. RESISTOR CH 1/10W 15K	1	
R4081	ERJ6GMYJ752	M. RESISTOR CH 1/10W 7. 5K	1	
R4082	ERJ6GMYJ332	M. RESISTOR CH 1/10W 3. 3K	1	
R4084, 85	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	2	
R4086, 87	ERJ6GMYJ222	M. RESISTOR CH 1/10W 2. 2K	2	
R4500	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R4502, 03	ERJ6GMYJ473	M. RESISTOR CH 1/10W 47K	2	
R4505, 06	ERJ6GMYJ682	M. RESISTOR CH 1/10W 6. 8K	2	
R4509	ERJ6GMYJ473	M. RESISTOR CH 1/10W 47K	1	
R4510	ERJ6GMYJ682	M. RESISTOR CH 1/10W 6. 8K	1	
R4511	ERJ6GMYJ473	M. RESISTOR CH 1/10W 47K	1	
R4512	ERJ6GMYJ682	M. RESISTOR CH 1/10W 6. 8K	1	
R4513	ERJ6GMYJ222	M. RESISTOR CH 1/10W 2. 2K	1	
R4516	ERJ6GMYJ472	M. RESISTOR CH 1/10W 4. 7K	1	
R4520	ERJ6GMYJ332	M. RESISTOR CH 1/10W 3. 3K	1	
R4525	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R4526	ERJ6GMYJ681	M. RESISTOR CH 1/10W 680	1	
R4527, 28	ERJ6GMYJ181	M. RESISTOR CH 1/10W 180	2	
R4530	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
R4532	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
R4534	ERJ6GMYJ124	M. RESISTOR CH 1/10W 120K	1	
R4538	ERJ6GMYJ303	M. RESISTOR CH 1/10W 30K	1	
R4539, 40	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	2	
R4563	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R4581, 82	ERJ6GMYJ821	M. RESISTOR CH 1/10W 820	2	
R4601	ERJ6GMYJ273	M. RESISTOR CH 1/10W 27K	1	
R4602	ERJ6GMYJ682	M. RESISTOR CH 1/10W 6. 8K	1	
R6001	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R6002	ERJ6GMYJ681	M. RESISTOR CH 1/10W 680	1	
R6003	ERJ6GMYJ274	M. RESISTOR CH 1/10W 270	1	
R6004	ERJ6GMYJ221	M. RESISTOR CH 1/10W 220	1	
R6006	ERJ6GMYJ183	M. RESISTOR CH 1/10W 18K	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R6007	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R6008	ERJ6GMYJ151	M. RESISTOR CH 1/10W 150	1	
R6009, 10	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	2	
R6011	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R6012	ERJ6GMYJ471	M. RESISTOR CH 1/10W 470	1	
R6013	ERJ6GMYJ105	M. RESISTOR CH 1/10W 1M	1	
R6017	ERJ6GMYJ222	M. RESISTOR CH 1/10W 2. 2K	1	
R6023	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R6102	ERJ6GMYJ222	M. RESISTOR CH 1/10W 2. 2K	1	
R6103	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R6104-07	ERJ6GMYJ221	M. RESISTOR CH 1/10W 220	4	
R6109, 10	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	2	
R6201	ERJ6GMYJ332	M. RESISTOR CH 1/10W 3. 3K	1	
R6307	ERJ6GMYJ222	M. RESISTOR CH 1/10W 2. 2K	1	
R6309	ERDS2TJ821	C. RESISTOR 1/4W 820	1	
R7401	ERDS2TJ102	C. RESISTOR 1/4W 1K	1	
R7403	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R7502	ERJ6GMYJ472	M. RESISTOR CH 1/10W 4. 7K	1	
R7503	ERJ6GMYJ223	M. RESISTOR CH 1/10W 22K	1	
R7504	ERJ6GMYJ682	M. RESISTOR CH 1/10W 6. 8K	1	
R7505	ERJ6GMYJ123	M. RESISTOR CH 1/10W 12K	1	
R7506	ERJ6GMYJ223	M. RESISTOR CH 1/10W 22K	1	
R7507	ERJ6GMYJ563	M. RESISTOR CH 1/10W 56K	1	
R7508	ERJ6GMYJ183	M. RESISTOR CH 1/10W 18K	1	
R7509	ERDS2TJ681	C. RESISTOR 1/4W 680	1	
R7510	ERJ6GMYJ183	M. RESISTOR CH 1/10W 18K	1	
R7511	ERJ6GMYJ182	M. RESISTOR CH 1/10W 1. 8K	1	
R7512	ERJ6GMYJ332	M. RESISTOR CH 1/10W 3. 3K	1	
R7513	ERJ6GMYJ472	M. RESISTOR CH 1/10W 4. 7K	1	
R7514	ERJ6GMYJ682	M. RESISTOR CH 1/10W 6. 8K	1	
R7515	ERJ6GMYJ183	M. RESISTOR CH 1/10W 18K	1	
R7516	ERJ6GMYJ182	M. RESISTOR CH 1/10W 1. 8K	1	
R7517	ERJ6GMYJ332	M. RESISTOR CH 1/10W 3. 3K	1	
R7518	ERJ6GMYJ123	M. RESISTOR CH 1/10W 12K	1	
R7601	ERJ6GMYJ101	M. RESISTOR CH 1/10W 100	1	
R7602	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R7751	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
S1531	VES0834	S-TAB SWITCH	1	
S1532	VSS0520	MODE SELECT SWITCH	1	
S7401	VSS0530	AV SELECT SWITCH	1	
S7501	EVQPC105K	SWITCH	1	[SUPPLIED FROM MAV]
S7502, 03	EVQ11L07B	SWITCH	2	
S7505	EVQ11G04M	SWITCH	1	[SUPPLIED FROM MAV]
S7506	EVQ11L07B	SWITCH	1	
S7509, 10	EVQ11L07B	SWITCH	2	
S7512	EVQ11L07B	SWITCH	1	
S7513	EVQ11G04M	SWITCH	1	[SUPPLIED FROM MAV]
S7514-16	EVQ11L07B	SWITCH	3	
⚠ T1150	VLT0967	SWITCHING TRANSFORMER	1	[SUPPLIED FROM MAV]
T4081	VLT0895	TRANSFORMER	1	
⚠ TU7401	ENG56715G1	TUNER	1	[SUPPLIED FROM MAV]
W504	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
W506-09	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	4	
W511-16	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	6	
W518-24	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	7	
X3002	VSX1089	CRYSTAL OSCILLATOR	1	[SUPPLIED FROM MAV]
X6001	VSX0995	CRYSTAL OSCILLATOR	1	
X6002	VSX0914	CRYSTAL OSCILLATOR	1	[SUPPLIED FROM MAV]
		MISCELLANEOUS		
	VSC4998	HA ANGLE	1	[SUPPLIED FROM MAV]
	TP00351-51	FUSE HOLDER	2	
■	------------	CYLINDER STATOR C. B. A.		
		MISCELLANEOUS		
	HW-300A-DF	HALL IC	1	
	VJS3537B009G	CONNECTOR (FEMALE) 9P	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks

INTERNAL REFERENCE CODES

NOTE: This chart is only for internal reference.
Do not order any parts according to these codes.

P. C. B.	FILM CODE
MAIN C.B.A.	FUMF00 – 06D56

ORDER NO. VRD9802005C2

Service Manual

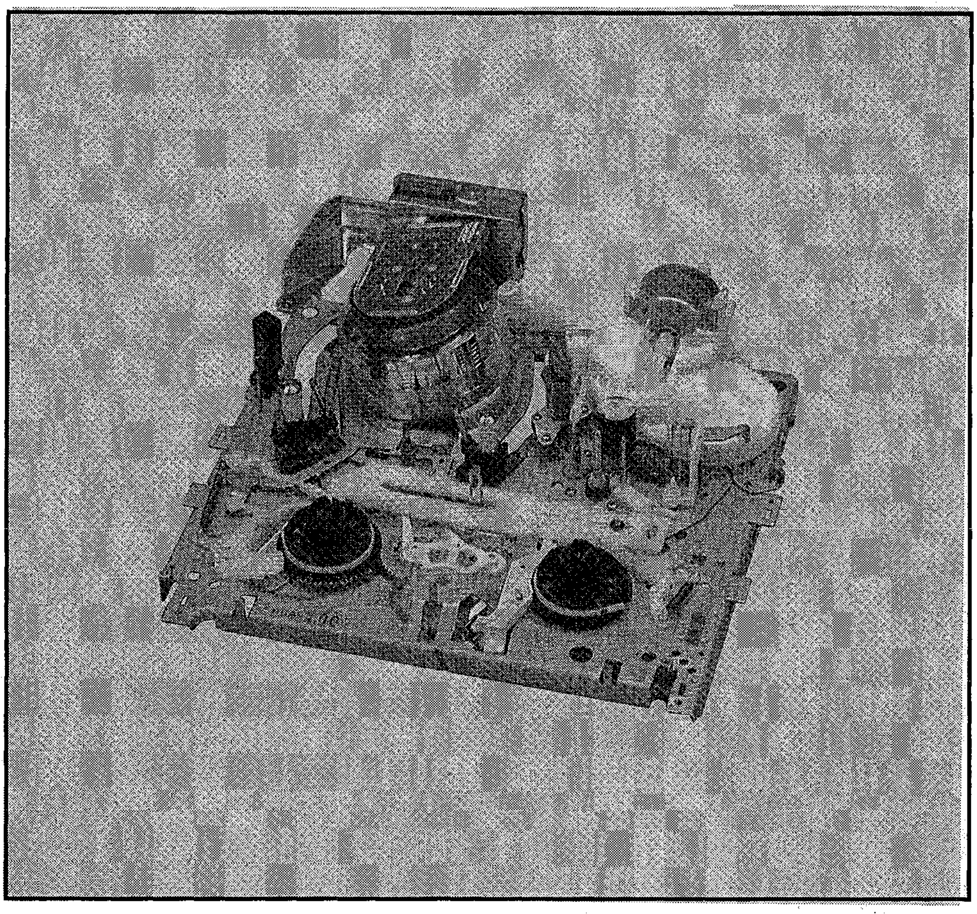
Video Cassette Recorder

Panasonic VHS

V20682

Z-MECHANISM CHASSIS

REV-1



INTRODUCTION

The Z-Mechanism chassis are built in several Panasonic VHS Video Cassette Recorders from NV-SD and NV-HD series in 1998.

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

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Panasonic

CONTENTS

1. OUTLINE OF Z MECHANISM 1
  1-1. The tape transport path 1
  1-2. Cassette holder unit 2
  1-3. Reel brake 2
  1-4. Number of Gear Phase Alignment Point and Replacement Parts 3
  Z Mechanism Components 4
  FLOW CHART OF LOADING MECHANISM 5
2. REMOVAL OF CASSETTE TAPE 6
  2-1. Removal of compulsory loading 6
  2-2. Removal of manual operation of Main cam gear 6
3. REMOVAL OF CASSETTE HOLDER UNIT & MECHANISM CHASSIS 7
  3-1. Removal of Cassette holder unit 7
  3-2. Removal of Mechanism chassis 8
4. DISASSEMBLY/ASSEMBLY METHOD FOR MECHANISM 9
  4-1. Disassembly of mechanism 9
  4-2. Assembly and phase adjustment of mechanism 14
  4-3. Assembly of mechanism chassis 20
  Parts Access Flow Chart 23
5. MECHANICAL ADJUSTMENT PROCEDURES 24
  5-1. Tension post position adjustment 24
  5-2. Back tension adjustment 24
  5-3. P2 and P3 posts adjustment 25
  5-4. Tape interchangeability adjustment 25
    5-4-(1). P2 AND P3 POSTS ADJUSTMENT 26
    5-4-(2). ADJUSTMENT OF P4 POST 27
    5-4-(3). HEIGHT ADJUSTMENT OF A/C HEAD 28
    5-4-(4). FINE-ADJUSTMENT OF A/C HEAD 28
    5-4-(5). ADJUSTMENT OF X-VALUE 28
    5-4-(6). FINE-ADJUSTMENT OF X-VALUE 29
  Servicing Fixtures & Tools 30
6. SELF-TEST INDICATION DISPLAY 31
7. SERVICE INFORMATION DISPLAY 33
  7-1. Purpose of Service Information Display 33
  7-2. Turning on Service Information Display 33
  7-3. Use of Service Modes 34
  7-4. Service Information Number 36
  7-5. Test Mode 36
  7-6. Timing chart from Mode SW to System control IC 38
8. SYSTEM CONTROL CIRCUIT & MECHANISM CONTROL CIRCUIT 39
  8-1. STOP 3 Specification 39
  8-2. Stand-by in the STOP3 position 39
  8-3. Supply and Take-up Sensors 40
  8-4. Safety Tab Switch 40
  8-5. Dew Sensor 41
  8-6. Setting time for each mode 42
  8-7. Operation of short CUE 42
  8-8. Loading/Unloading Mechanism lock 42
  8-9. Cassette loading/unloading lock 42
  8-10. Reel lock operation 43
  8-11. Cylinder lock 43
  8-12. Mode transition 44
  8-13. Power on reset 44
  8-14. Linear time counter operation 44
  8-15. Tape speed in CUE/REV mode 45
  8-16. Automatic functions 45
  8-17. CUE/REV lock mode 45
  8-18. FR (Forward/Reverse) search mode 45
  8-19. FF/REW speed 45
  8-20. FF/REW time 45

9. EXPLODED VIEWS & REPLACEMENT PARTS LIST
  9-1. MECHANICAL REPLACEMENT PARTS SECTION

1. OUTLINE OF Z MECHANISM

1-1. The tape transport path

(1) Mechanism Chassis

Aluminium Chassis has been changed to sheet metal (Thickness: 1.2 mm).

(2) Capstan position (Cassette-in method/Capstan-in method)

The Tape does not touch the Cassette tape so that the rationalization has been promoted such as Reel gear pinch up/down mechanism has been deleted.

(3) Deletion of P1 post

FE Head has been installed Limiter so that P1 post has been deleted.

(4) A/C Head base combined with P4 post

A/C Head has been combined with P4 post on the same base.

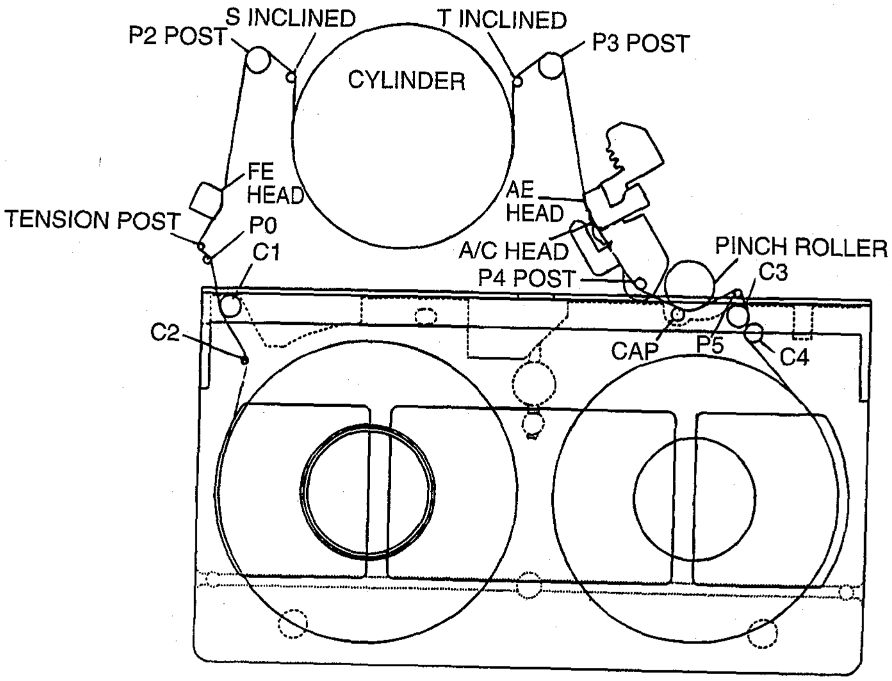
(5) Change of A/C head base type

The change of the angle winding the tape on A/C head has been reduced by the construction of A/C head base has been changed from the revolution type to slide base type.

(6) Improvement of P5 post

P5 post operation has been changed by non-adjustable of the Height and the Tilt adjustment so that the specification has been improved.

Z Mechanism tape transport path in REV mode


S INCLINED
T INCLINED
P2 POST
P3 POST
CYLINDER
FE HEAD
AE HEAD
TENSION POST
P0
C1
A/C HEAD
P4 POST
PINCH ROLLER
C3
C2
CAP
P5
C4

1-2. Cassette holder unit

(1) Cassette-in operation

The Rack drive arm drives Main Cam gear by inserting the cassette tape. Consequently, Position switch detects the cassette-in mode so that Loading motor drives. The mode goes to the Stop mode from the Cassette-in through the Loading mode.

① The parts quantity reduction of Cassette holder unit.

(Z Mechanism: 21 pieces, K Mechanism: 36 pieces)

a. Release lever has been installed in Right Side Plate.

b. Cassette guide has been installed in Front Panel unit.

c. Safety lever spring is made by the resin.

d. Opener lever has been changed into the single opener type.

e. One side of Side Plate unit is hung on Chassis in order to fix it.

② Improvement of the cassette insertion

(The force of the cassette insertion Z Mechanism: Approximately 400gm.,
K Mechanism: Approximately 600gm.)

The tooth pitch of Worm gear which has been extended against the previous model, is located on the Motor so that Worm gear can be reversed. Consequently, the Motor rotates before the insertion spring (the combined spring) is working when the cassette tape is inserted, so that the repelled force of the insertion spring has been reduced as differing from the present model.

③ Small-sized Cassette holder unit (Thinned unit)

a. The Wiper arm method which has been adopted, assigned Wiper arm between Cassette Holder Plate and Side Plate so that the small-sized of the width has been realized.

b. To prevent the increment of parts quantity such as Safety lever is used for Pre-open mechanism shown in the present model, and the small-sized unit has been realized by inclining one portion of the L groove in Side Plate.

c. The part of driving change-over is located in the nearest to the center of Reel so that the depth size is compacter.

1-3. Reel brake

(1) Supply Reel Brake is used for Tension Regulator which is composed of the conventional Main brake and the soft brake function.

(2) Take-up Reel Brake is used as Band Brake unit in order to correspond with Supply Reel Brake.

※ Tension Regulator performance:

This is composed of Tension regulator and brake. The tape always is given the tension against the advance direction by Tension band.

(3) Construction of Supply reel tension regulator

Comparison of the construction with the conventional model

	Z Mechanism	K Mechanism
Tension Arm Shaft Bearing construction	Resin	Tension arm
Tension Band	Felt less Lumiller	Felt Lumiller
Braking method	Tension regulator	Main & soft brake

Operating mode and necessary function

Mechanism mode	Necessary function	Operation
Cassette down	Prevention of the tape slag (Soft brake)	Soft brake
Completion of Loading	Prevention of the tape slag (Soft brake)	Tension regulator
REV	Prevention of in Play mode to REV mode (Soft brake)	Tension regulator
PLAY, FF	Back tension adjustment	Same as the conventional
STOP	Main brake function	Tension regulator

(4) Construction of Take-up brake

Take-up brake is used Band brake as well as Supply brake depend on corresponding with Band brake is adopted at the Supply Side.

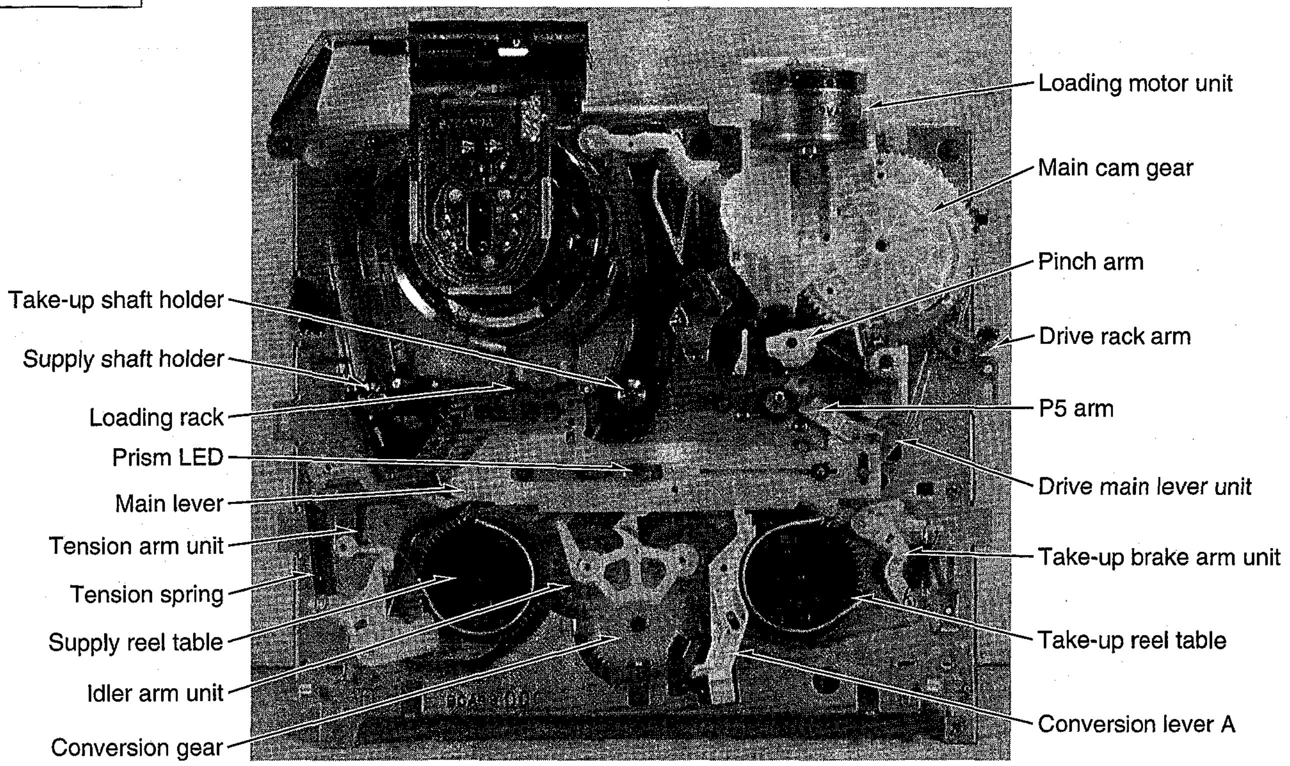
Mechanism mode	Function	Band
EJECT-MID	Soft brake	On
REV	Soft brake	On
PLAY	Release of brake	Off
STOP	Brake	On
FF/REW	Release of brake	Off

1-4. Number of Gear Phase Alignment Point and Replacement Parts

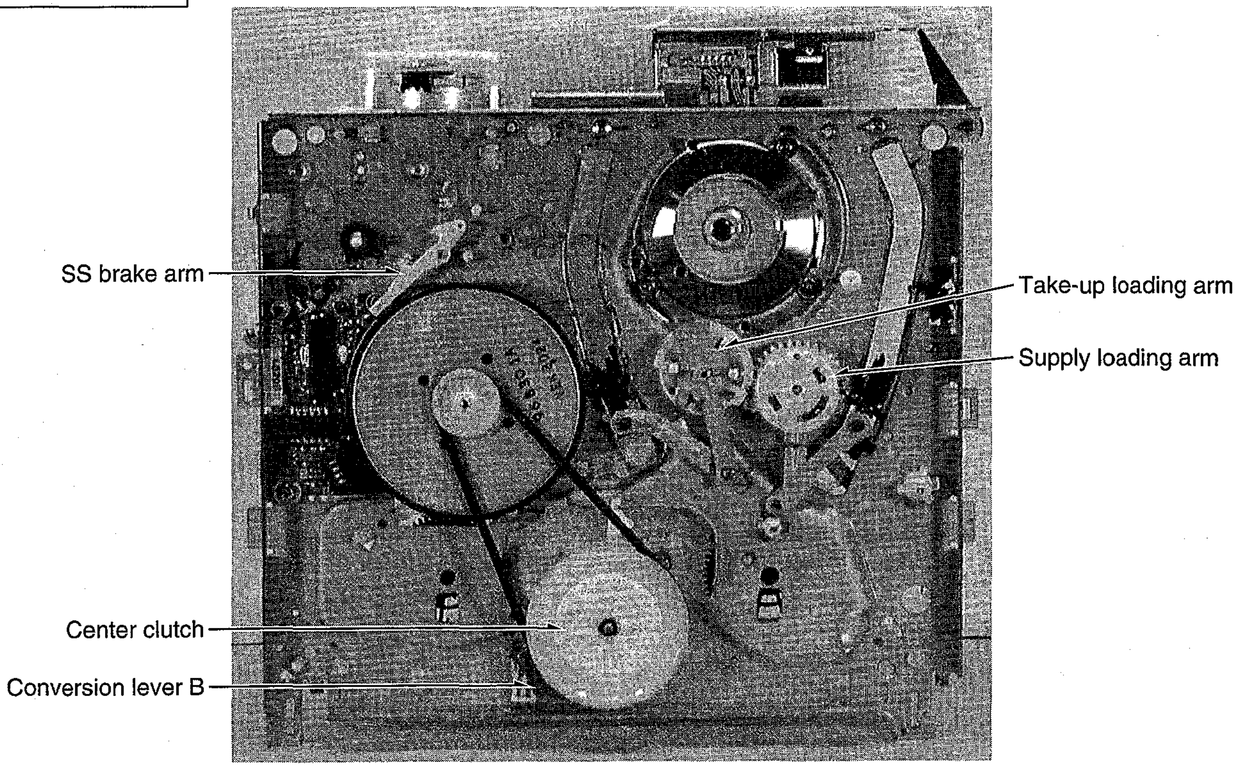
Number of Gear Phase' Alignment Point	
G2 Mechanism	12 Alignment Points
G Mechanism	12 Alignment Points
K Mechanism	6 Alignment Points
Z Mechanism	4 Alignment Points
Number of Replacement Parts' (including the Screw and Washer)	
G2 Mechanism	Approx.170 Pieces
G Mechanism	Approx. 150 Pieces
K Mechanism	Approx. 100 Pieces
Z Mechanism	Approx. 70 Pieces

Z Mechanism Components

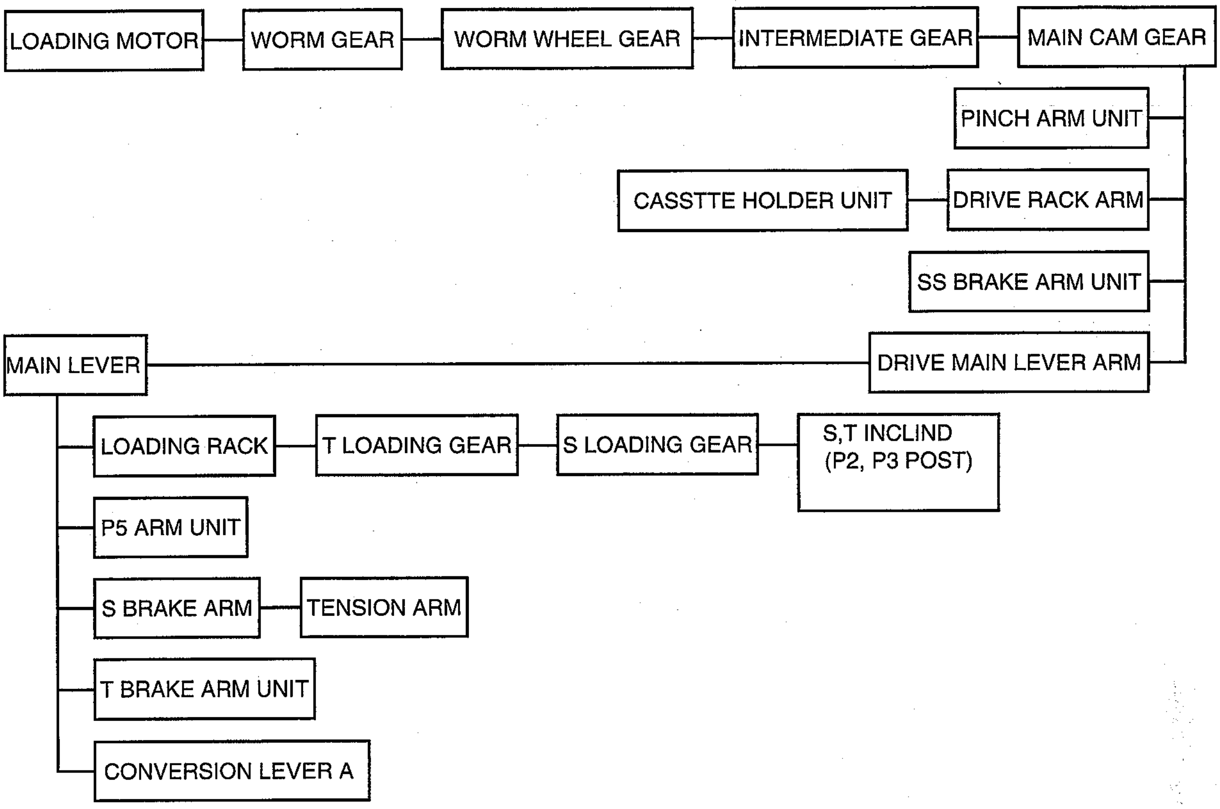
TOP VIEW

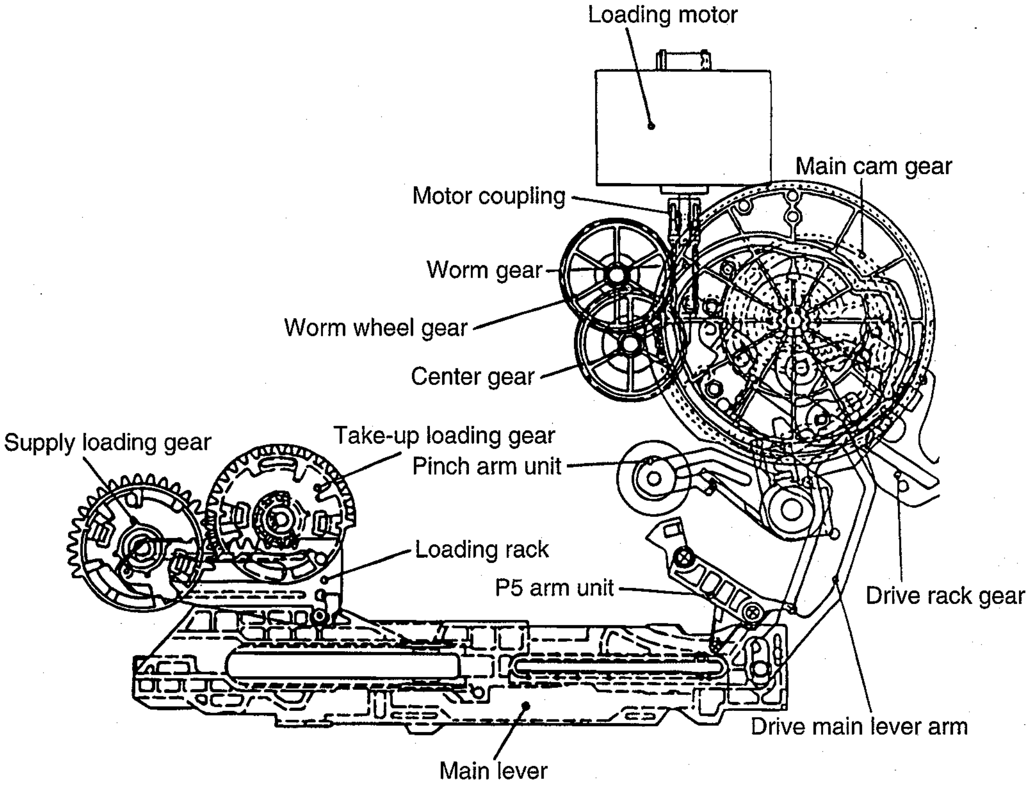

Loading motor unit
Main cam gear
Pinch arm
Take-up shaft holder
Drive rack arm
Supply shaft holder
Loading rack
P5 arm
Prism LED
Drive main lever unit
Main lever
Tension arm unit
Take-up brake arm unit
Tension spring
Supply reel table
Take-up reel table
Idler arm unit
Conversion lever A
Conversion gear

BOTTOM VIEW


SS brake arm
Take-up loading arm
Supply loading arm
Center clutch
Conversion lever B

FLOW CHART OF LOADING MECHANISM


LOADING MOTOR
WORM GEAR
WORM WHEEL GEAR
INTERMEDIATE GEAR
MAIN CAM GEAR
PINCH ARM UNIT
CASSTTE HOLDER UNIT
DRIVE RACK ARM
SS BRAKE ARM UNIT
MAIN LEVER
DRIVE MAIN LEVER ARM
LOADING RACK
T LOADING GEAR
S LOADING GEAR
S,T INCLIND
(P2, P3 POST)
P5 ARM UNIT
S BRAKE ARM
TENSION ARM
T BRAKE ARM UNIT
CONVERSION LEVER A


Loading motor
Main cam gear
Motor coupling
Worm gear
Worm wheel gear
Center gear
Supply loading gear
Take-up loading gear
Pinch arm unit
Loading rack
P5 arm unit
Drive rack gear
Drive main lever arm
Main lever

2. REMOVAL OF CASSETTE TAPE

There are 2 ways to remove a cassette tape.

2-1. Removal of compulsory loading

(1) Press FF and EJECT buttons simultaneously for more than 3 seconds and set the Service Mode 7.

In case of VCR mounted shuttle ring, turn the shuttle ring to FF and then press EJECT button for more than 3 seconds.

In Loewe model, STOP button is used instead of FF button.

(2) Press STOP button in order to unload the mechanism. (Pay an attention of tape slack)

Service Mode Indication :

7 ※※ ※※ (STOP)→7 00 ※※ (EJECT)

2-2. Removal of manual operation of Main cam gear

(1) Disconnect the AC power cord and remove Top Panel.

(2) Rotate Main cam gear to the clockwise and unload the mechanism (Tape is remaining) (Fig. A1).

TOP VIEW

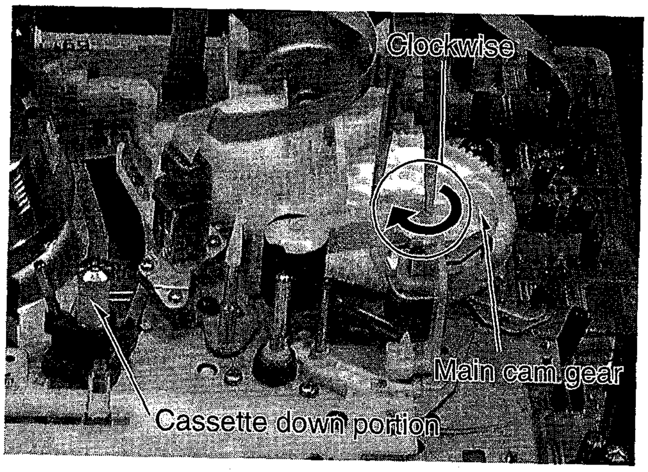


Fig. A1

(3) Rotate the Pole of Capstan motor to the clockwise from the bottom in order to remove the tape slack (Fig. A2).

BOTTOM VIEW

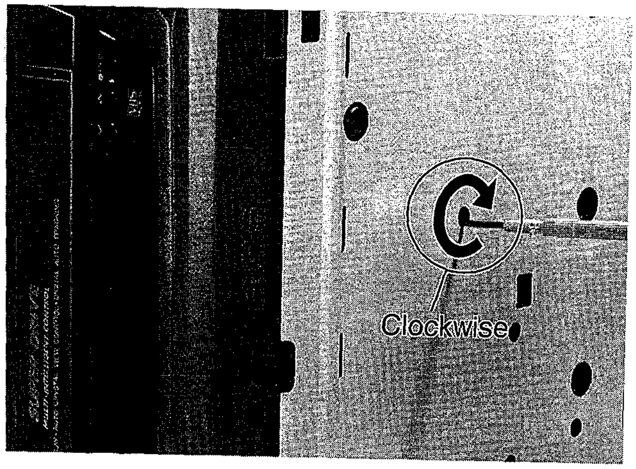


Fig. A2

(4) Rotate Main cam gear to the clockwise in order to eject the cassette tape.

3. REMOVAL OF CASSETTE HOLDER UNIT & MECHANISM CHASSIS

3-1. Removal of Cassette holder unit

(1) Remove Top panel and Front panel unit (Fig. B1).

TOP VIEW

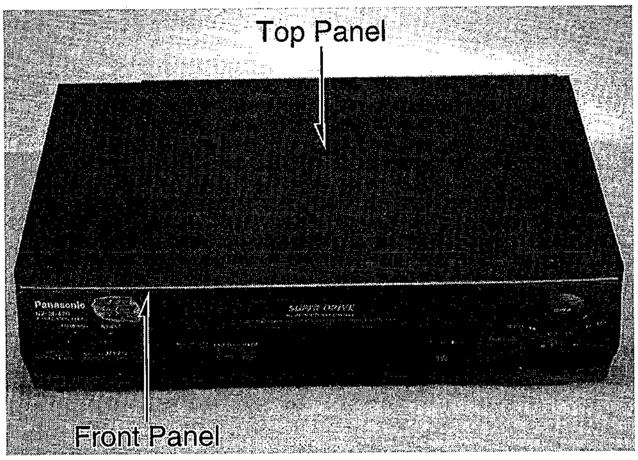

Top Panel
Front Panel

Fig. B1

(2) Remove Top plate

Remove 4 tabs fixing Top plate and remove Top plate (Fig. B2).

※ 4 Tabs should be removed softly due to they are fragile.

TOP VIEW

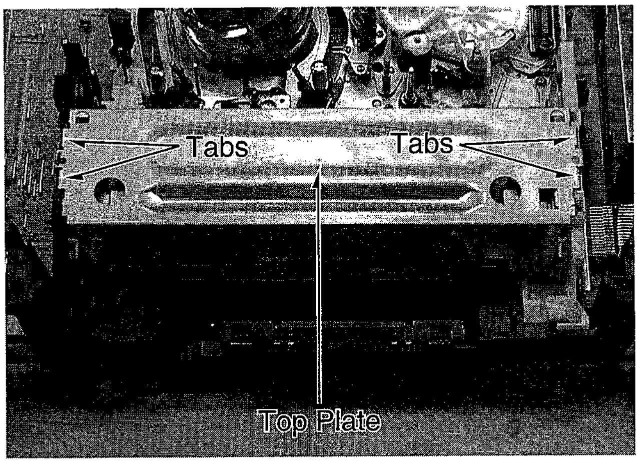

Tabs
Tabs
Top Plate

Fig. B2

(3) Remove Cassette Holder

Keep pressing 2 stoppers on Cassette holder and Press Cassette holder to the rear and remove it from Left and Right Side Plate (Fig. B3).

TOP VIEW

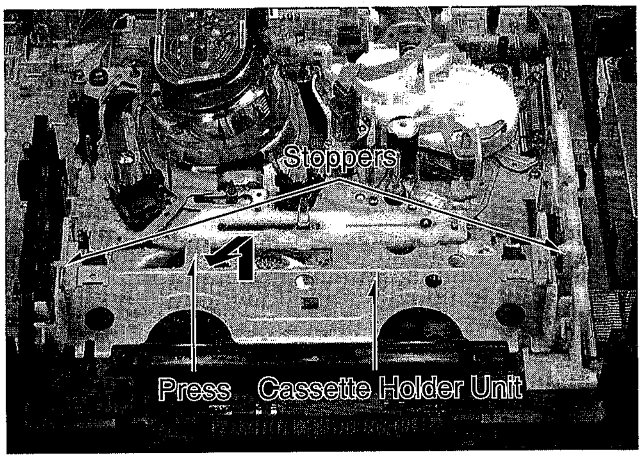

Stoppers
Press
Cassette Holder Unit

Fig. B3

(4) Remove Left and Right Side Plate

Remove connection spring of Drive gear.

Remove 3 red screws, 3 tabs and remove Left and Right Side Plate (Fig. B4, B5).

TOP VIEW

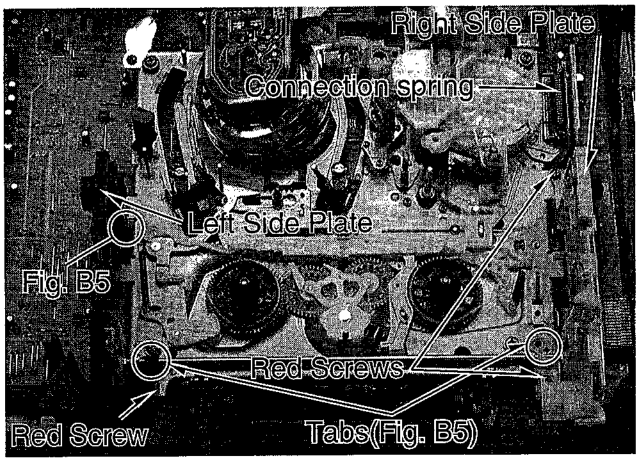

Right Side Plate
Connection spring
Left Side Plate
Fig. B5
Red Screws
Red Screw
Tabs(Fig. B5)

Fig. B4

TOP VIEW

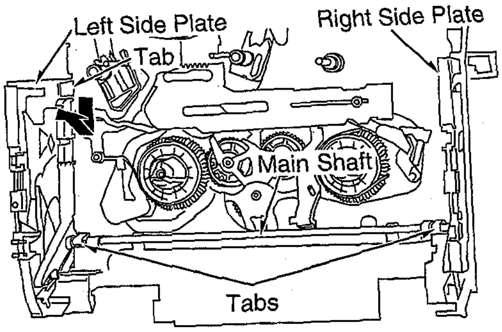

Left Side Plate
Tab
Right Side Plate
Main Shaft
Tabs

Fig. B5

(5) Remove Main shaft (Fig. B6)

TOP VIEW

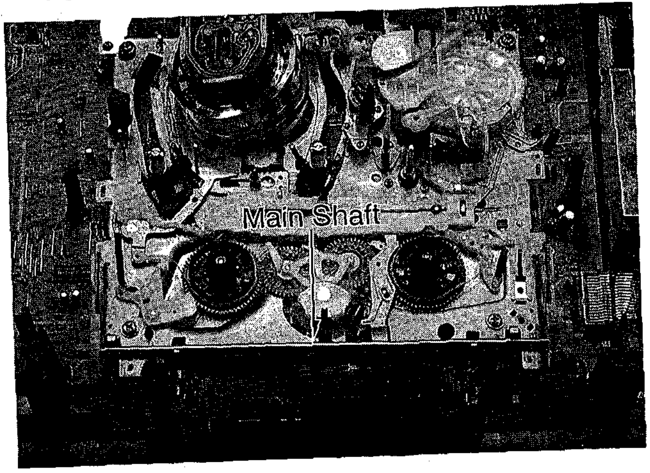


Fig. B6

3-2. Removal of Mechanism chassis

(1) Remove Mechanism chassis

Disconnect P3001, P2502 and P4002 (the connectors of Head amp C.B.A., Cylinder unit and A/C Head). Remove 5 screws (3 red screws and 2 gold screws) on Mechanism chassis and take out Mechanism chassis (Fig. B7).

TOP VIEW

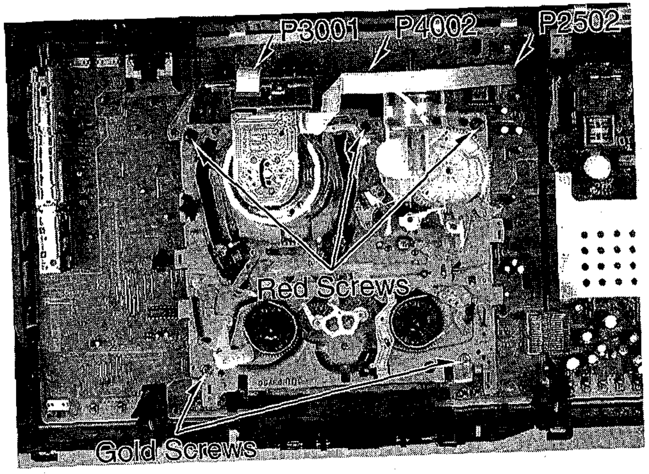

P3001
P4002
P2502
Red Screws
Gold Screws

Fig. B7

4. DISASSEMBLY/ASSEMBLY METHOD FOR MECHANISM

4-1. Disassembly of mechanism

1. Removal of Pinch arm

   Unlock the tab (opener piece). Remove Opener piece and Pinch arm (Fig. C1).

2. Removal of Loading motor unit

   Unlock 3 tabs and remove Loading motor unit (Fig. C1, C2).

   2 tabs of them located on the bottom of the Mechanism (Fig. C2).

TOP VIEW

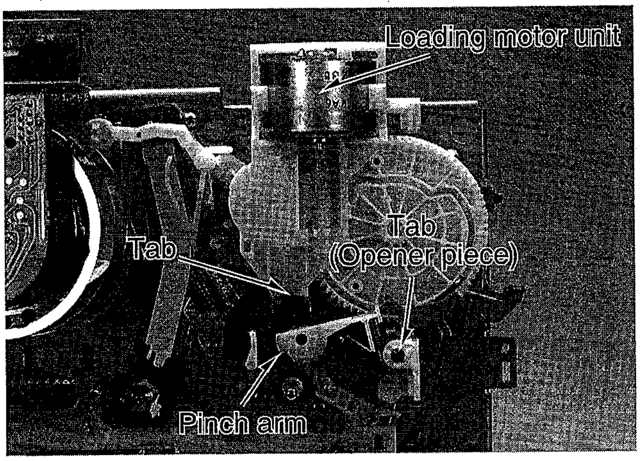

Loading motor unit
Tab
Tab (Opener piece)
Pinch arm

Fig. C1

BOTTOM VIEW

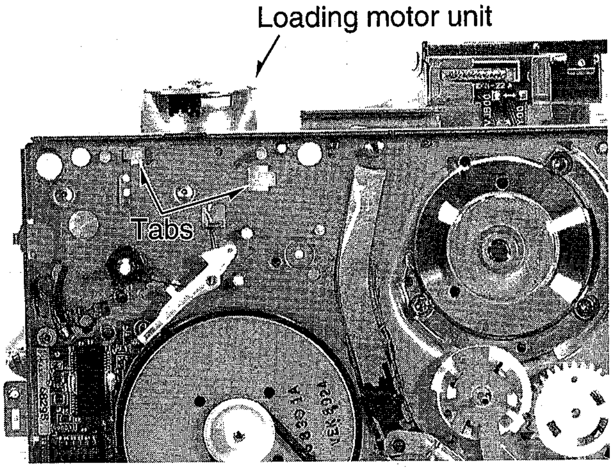

Loading motor unit
Tabs

Fig. C2

3. Removal of Main cam gear

   Remove Snap washer located on the bottom of Chassis by using retaining ring remover (Fig. C3) and remove Main cam gear (Fig. C4).

BOTTOM VIEW

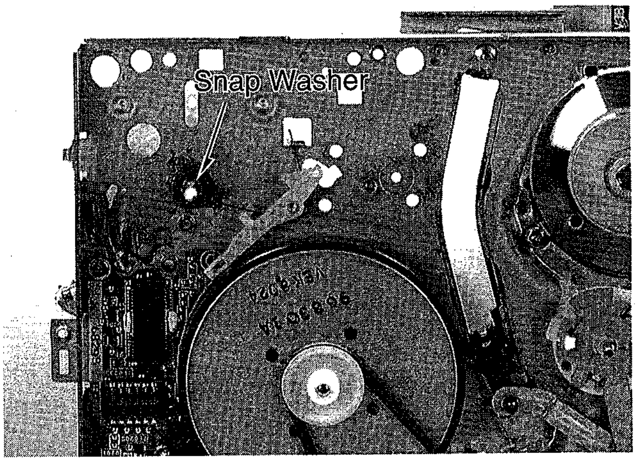

Snap Washer

Fig. C3

TOP VIEW

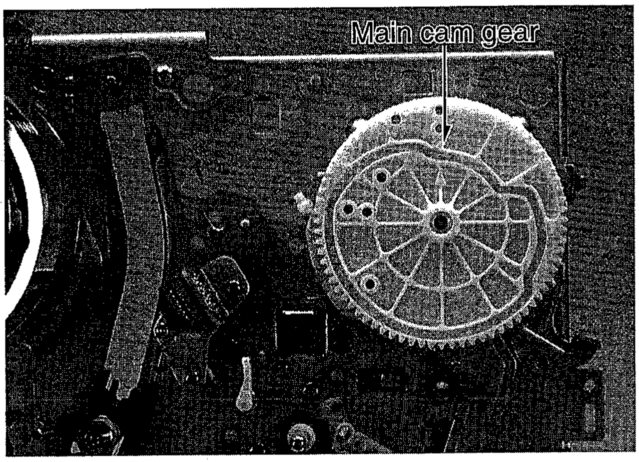

Main cam gear

Fig. C4

4. Removal of Drive rack arm
   Rotate Drive rack arm to the counterclockwise and remove it (Fig. C5).

TOP VIEW

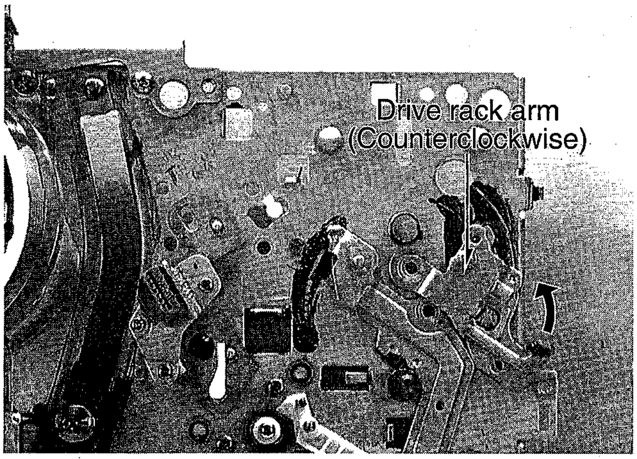

Drive rack arm
(Counterclockwise)

Fig. C5

5. Removal of Main lever, P5 arm and Conversion lever A
   Unlock 2 tabs of Prism LED and 1 tab on the projection of Chassis while keep lifting the left side of Main lever, and remove Main lever, P5 arm and Conversion lever A (Fig. C6).

※ It is easier to unlock the tabs by using a tweezer.

TOP VIEW

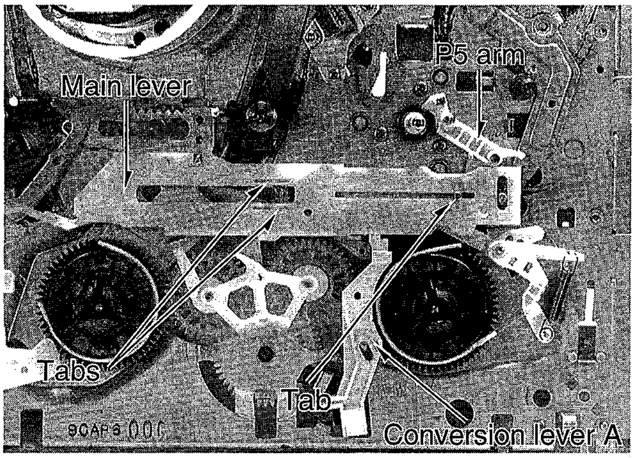

Main lever
P5 arm
Tabs
Tab
Conversion lever A

Fig. C6

6. Removal of Drive main lever arm
   Rotate Drive main lever arm to the counterclockwise and remove it (Fig. C7).

TOP VIEW

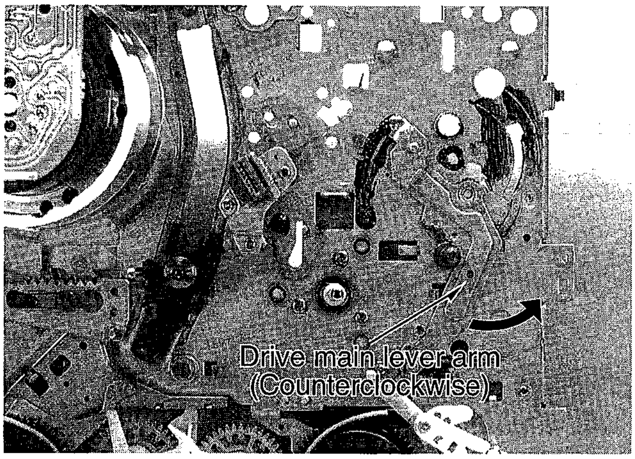

Drive main lever arm
(Counterclockwise)

Fig. C7

7. Removal of Tension arm unit and Supply reel table
   Remove Tension spring (Fig. C8). Unlock the tab of Tension arm projection on the bottom of Chassis (Fig. C9) and remove Tension arm unit and Supply reel table (Fig. C8).

※ When remove supply reel table, be sure whether a washer attaches on Supply reel table shaft (Fig. C10).

TOP VIEW

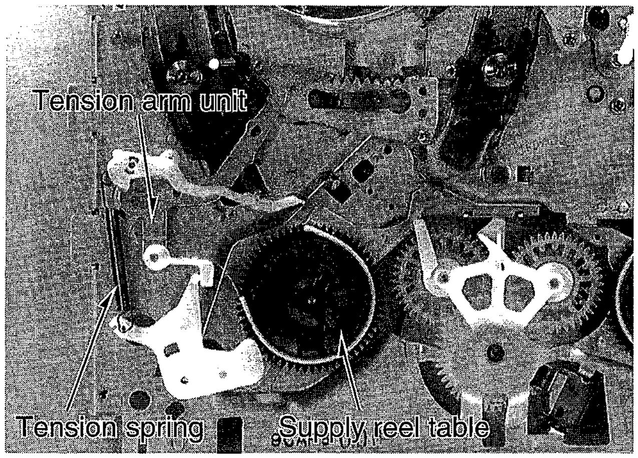

Tension arm unit
Tension spring
Supply reel table

Fig. C8

BOTTOM VIEW

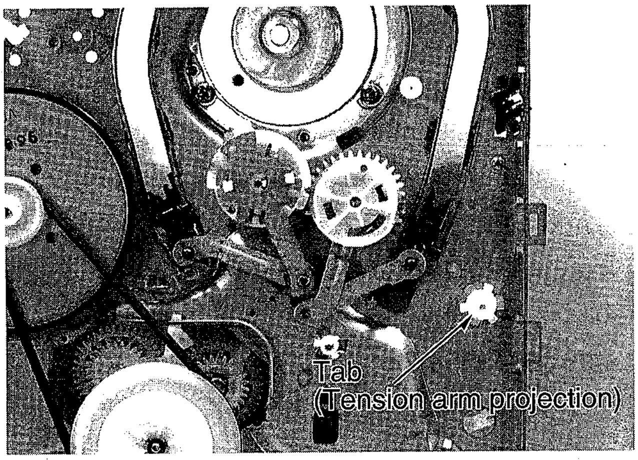

Tab
(Tension arm projection)

Fig. C9

TOP VIEW

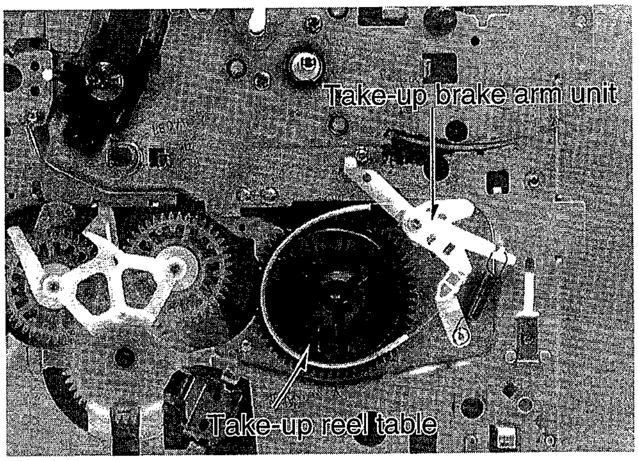

Take-up brake arm unit
Take-up reel table

Fig. C11

SIDE VIEW

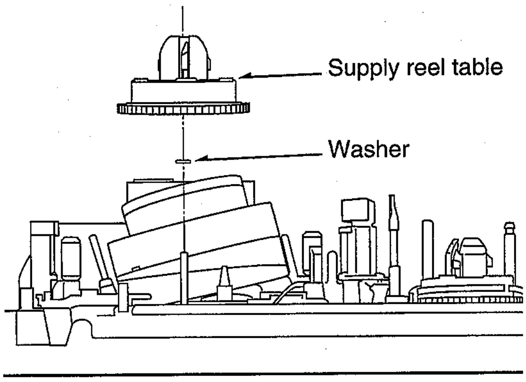

Supply reel table
Washer

Fig. C10

BOTTOM VIEW

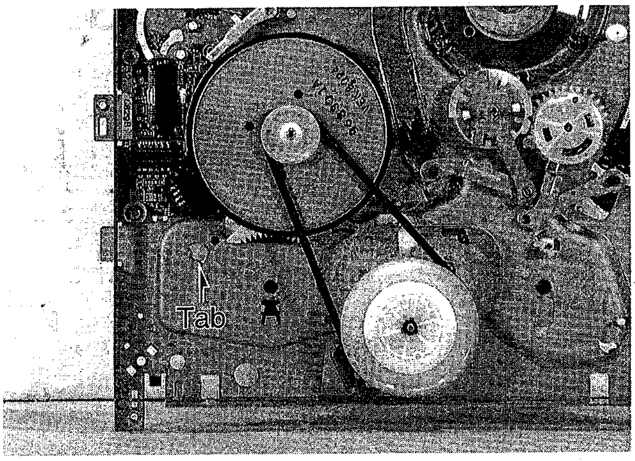


Fig. C12

8. Remove of Take-up brake arm unit and Take-up reel table
   Unlock the tab of Take-up brake arm unit from the bottom of Chassis (Fig. C12). Remove Take-up brake arm unit and Take-up reel table (Fig. C11).

※ When remove Take-up reel table, be sure whether a washer attaches on Take-up reel table shaft (Fig. C13).

SIDE VIEW

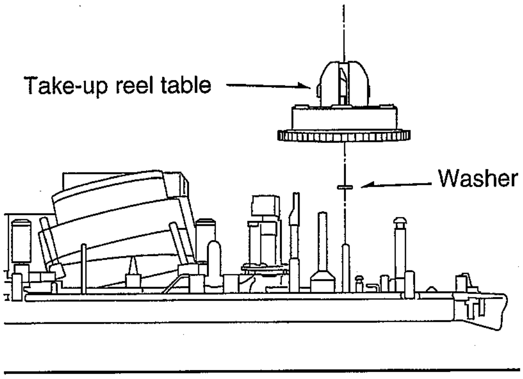

Take-up reel table
Washer

Fig. C13

9. Removal of Take-up & Supply loading arm
   Unlock the tab and remove Take-up and Supply loading arm (Fig. C14).

BOTTOM VIEW

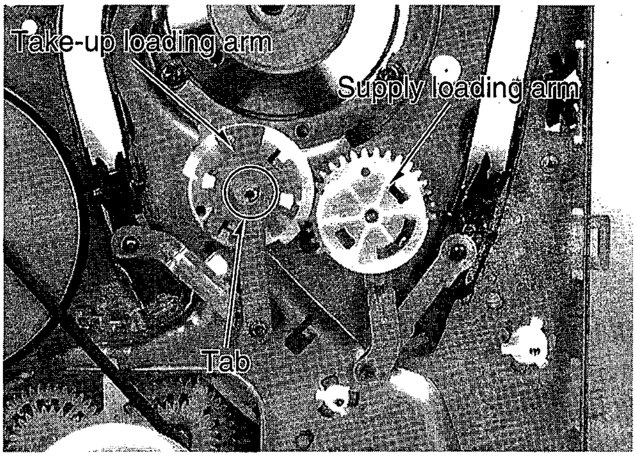

Take-up loading arm
Supply loading arm
Tab

Fig. C14

10. Removal of Prism LED, Take-up & Supply shaft holder and Loading rack
    Push the tab of Prism LED and remove Prism LED. Remove Take-up and Supply shaft holder from the groove of Chassis and remove Loading rack (Fig. C15).

TOP VIEW

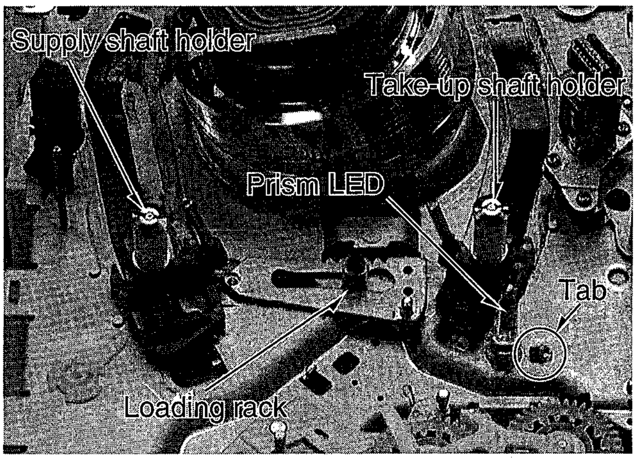

Supply shaft holder
Take-up shaft holder
Prism LED
Tab
Loading rack

Fig. C15

11. Removal of Center clutch, Conversion gear spring, Conversion gear, Conversion lever B and Idler arm unit
    Remove the Belt and the Cut washer (Fig. C16).
    Remove Center clutch (Fig. C16), Conversion gear spring, Conversion gear, Conversion lever B and Idler arm unit (Fig. C17).

※ Pay an attention of Conversion gear spring during the removal.

BOTTOM VIEW

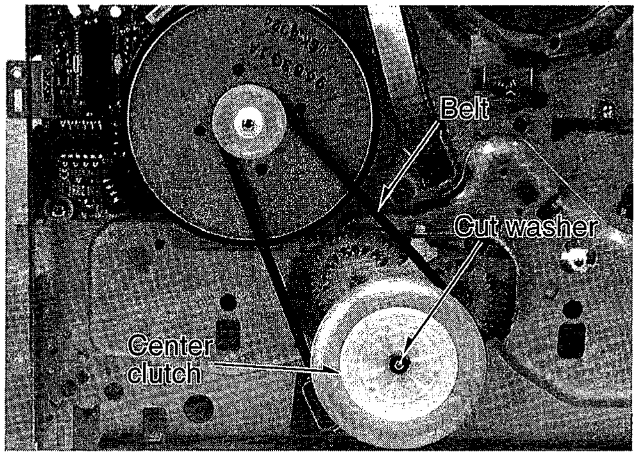

Belt
Cut washer
Center clutch

Fig. C16

BOTTOM VIEW

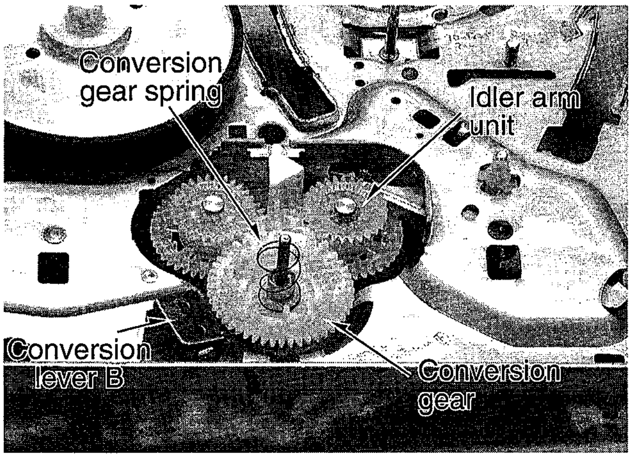

Conversion gear spring
Idler arm unit
Conversion lever B
Conversion gear

Fig. C17

12. Removal of Capstan unit
Remove 3 gold screws (Fig. C18).
Remove 2 gold screws on the bottom of Chassis (Fig. C19).
Keep moving SS brake arm and remove Capstan unit.

TOP VIEW

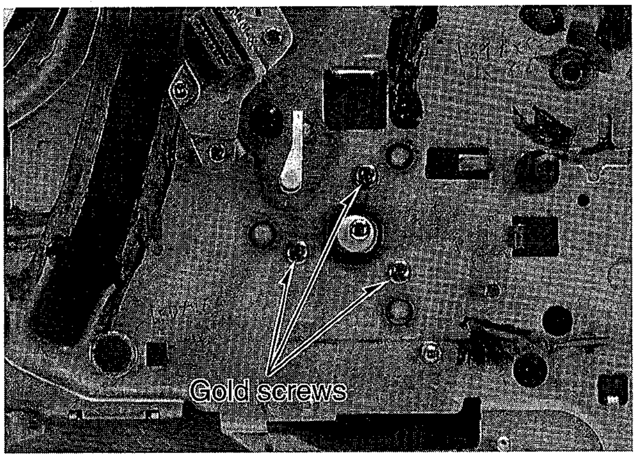

Gold screws

Fig. C18

BOTTOM VIEW

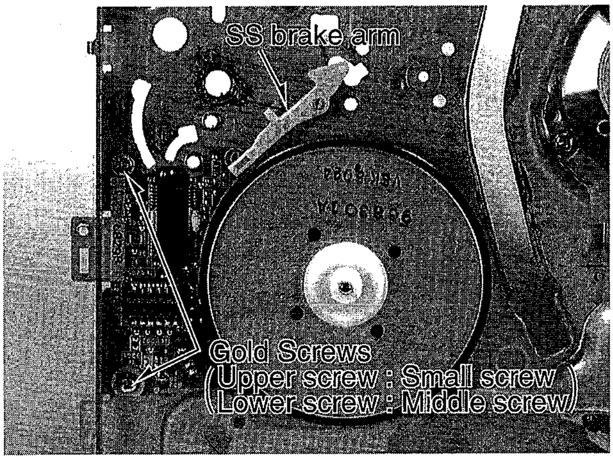

SS brake arm
Gold Screws
(Upper screw : Small screw
Lower screw : Middle screw)

Fig. C19

13. Removal of Cylinder unit
Remove red screw (Fig. C20).
Remove 3 gold screws on the bottom of Chassis and remove Cylinder unit (Fig. C21).

TOP VIEW

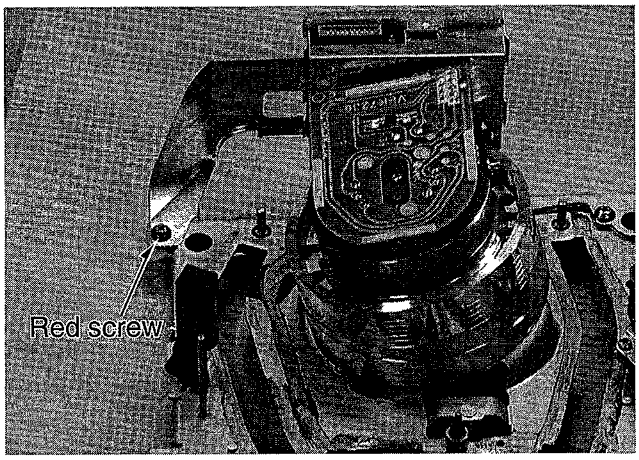


Fig. C20

BOTTOM VIEW

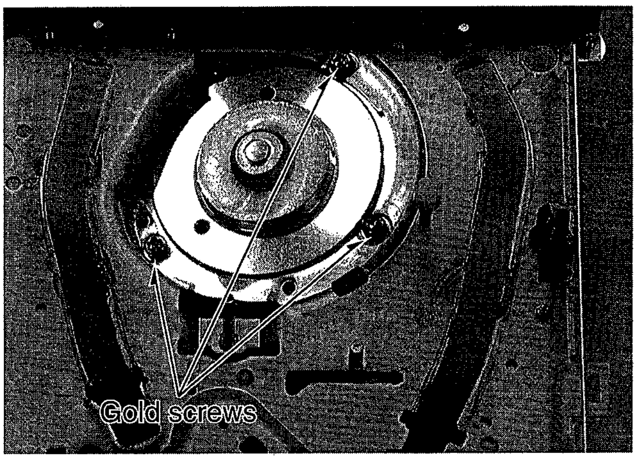

Gold screws

Fig. C21

4-2. Assembly and phase adjustment of mechanism

The gear phase alignment has been performed in the EJECT position and it is crucial for the Z Mechanism to operate correctly.

NOTE: In case of the parts replacement like Position switch, Mechanism position should be set to Eject position in order to fit the phase of Position switch.

1. Assembly and phase adjustment of Mechanism

(1) Assembly of Cylinder unit

Cylinder unit should be fixed by 3 screws (GOLD) from the bottom side of Mechanism chassis and red screw on the top side of Mechanism Chassis (Fig. E1, E2).

BOTTOM VIEW

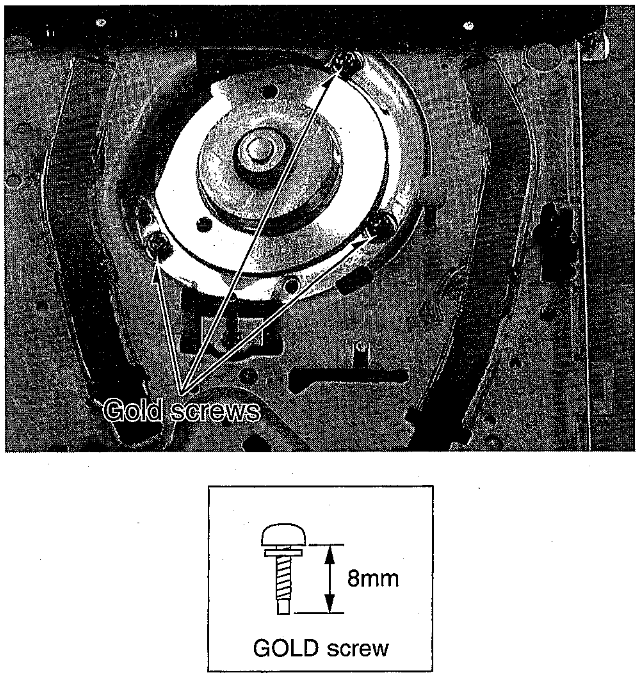

Gold screws
8mm
GOLD screw

Fig. E1

TOP VIEW

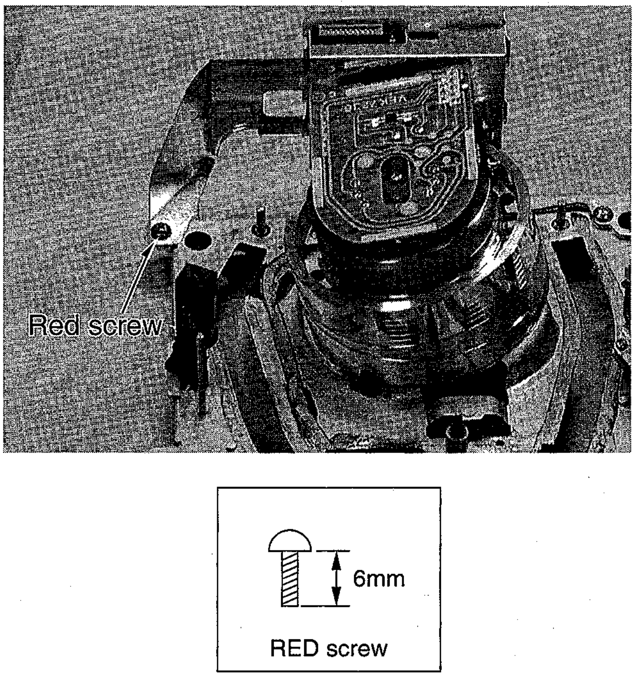

Red screw
6mm
RED screw

Fig. E2

(2) Assembly of Capstan unit

Move SS brake arm in the direction of arrow (see Fig. E3) and capstan unit should be fixed by 2 screws (GOLD) on the bottom side of Mechanism chassis and 3 screws (GOLD) on the top of Mechanism chassis (Fig. E3, E4).

BOTTOM VIEW

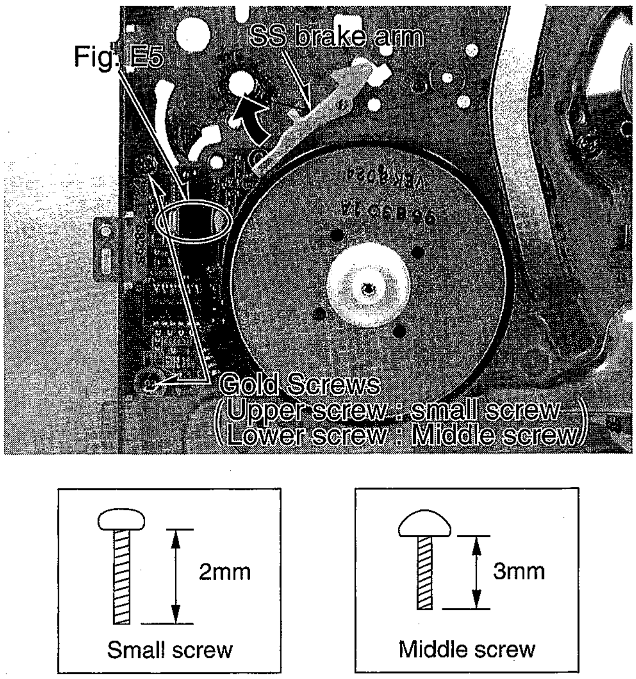


Fig. E5
SS brake arm
Gold Screws
(Upper screw : small screw)
(Lower screw : Middle screw)
2mm
Small screw
3mm
Middle screw

Fig. E3

TOP VIEW

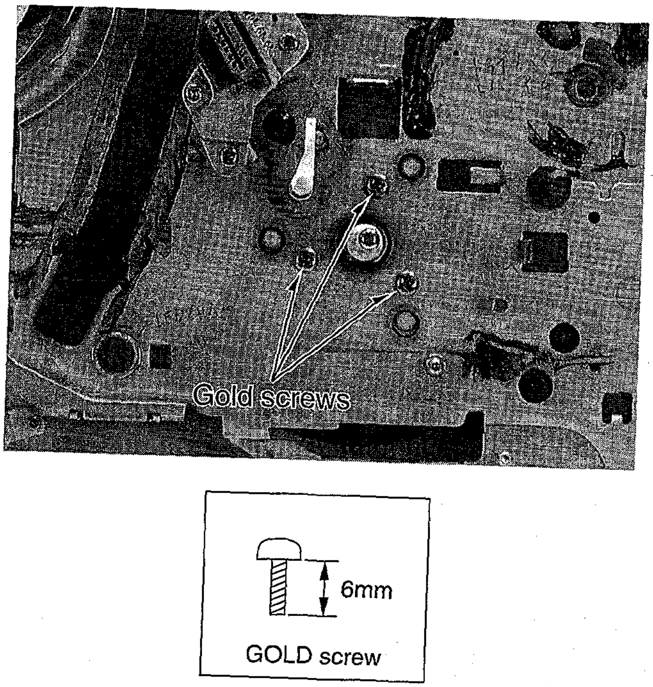


Fig. E4

NOTE: Replacement of Capstan unit and Procedure of applying the silicone grease.

REPLACEMENT OF CAPSTAN UNIT

In case of replacement of the Capstan Unit the Silicone grease have to be applied between the Mechanism chassis and the Drive IC by the following procedure.

Silicone grease No. VFK1301 for radiation of the Drive IC

Silicone grease is used for the radiation of the Drive IC. The heat occurred on the IC is radiated to the Mechanism chassis through the grease. In case of the incomplete radiation, the safety circuit operates depending on the rise of the temperature and it possibility stop the operation of the Drive IC.

PROCEDURE OF APPLYING THE SILICONE GREASE

① There is a cut-out part at the Drive IC mounting position and the bottom of the IC can be seen from the cut-out part. Apply the Silicon grease to whole the cut-out part of IC as shown in Fig. E5-1 so that the grease is piled 0.3–0.5 mm from the surface of the C.B.A.

② Next, from the component side of the C.B.A., apply the Silicon grease so that the grease is piled at the metal of the center of the IC as shown in Fig. E5-2.

SIDE VIEW

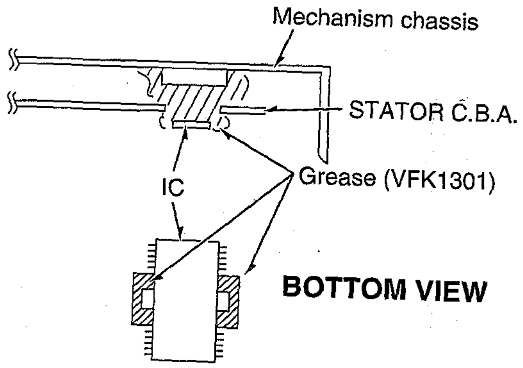


Fig. E5

TOP VIEW

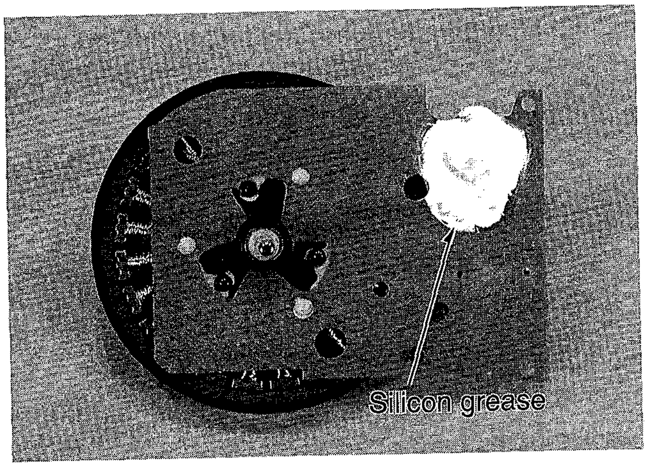

Silicon grease

Fig. E5-1

Fig. E5-1. Apply the Silicon grease so that the grease is piled 0.3–0.5 mm from the surface of the C.B.A.

BOTTOM VIEW

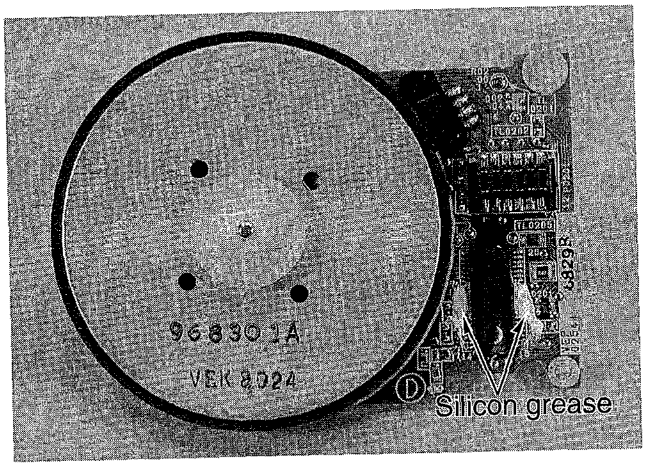

Silicon grease

Fig. E5-2

Fig. E5-2. Apply the Silicon grease at the metal of the center of the IC.

(3) Assembly of Idler arm unit, Conversion lever B, Conversion gear, Conversion gear spring and Center clutch

Put above parts together in the following order and fix them by Cut washer (Fig. E6), and install Capstan belt.

① Idler arm unit
② Conversion lever B
③ Conversion gear
④ Conversion gear spring
⑤ Center clutch

BOTTOM VIEW

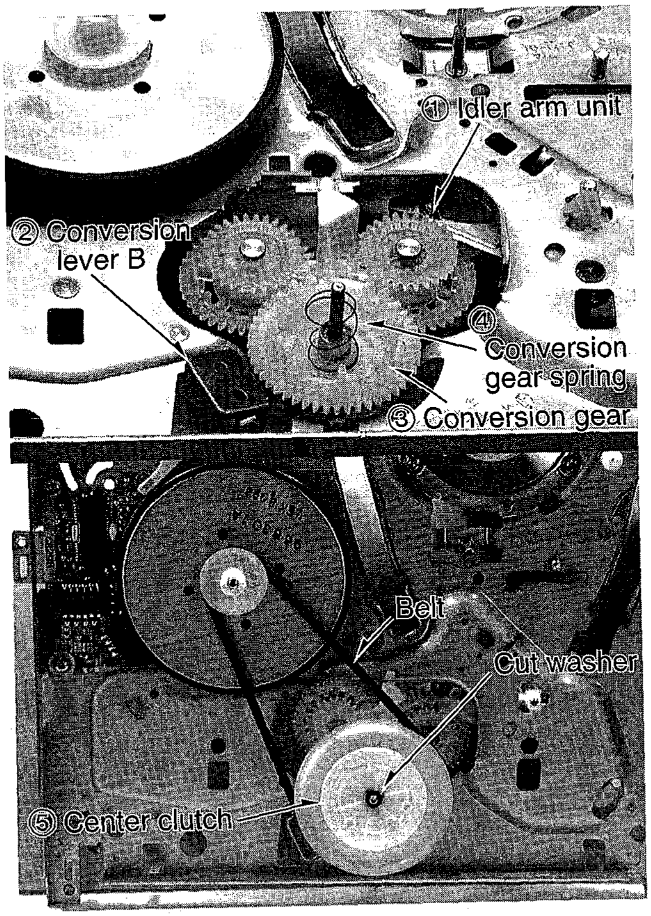

① Idler arm unit
② Conversion lever B
④ Conversion gear spring
③ Conversion gear
Belt
Cut washer
⑤ Center clutch

Fig. E6

(4) Assembly of Loading rack, Take-up & Supply shaft holder and Prism LED

Adjust the phase between the hole of Loading rack position fixture and the penetration hole of Chassis. Install Take-up and Supply shaft holder so that Take-up and Supply shaft holder fits the groove of Chassis.

Put Prism LED together (Fig. E7).

TOP VIEW

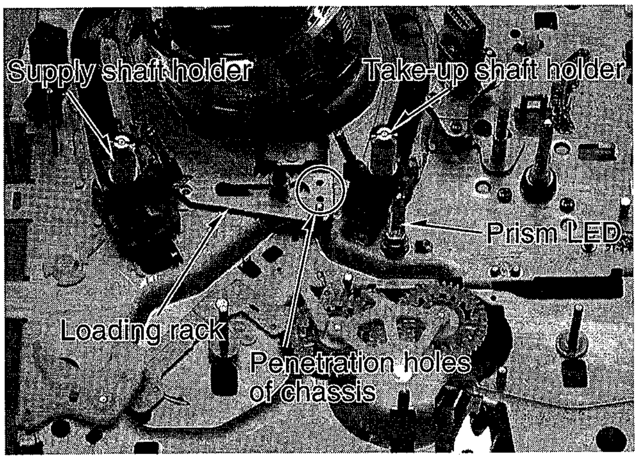

Supply shaft holder
Take-up shaft holder
Prism LED
Loading rack
Penetration holes of chassis

Fig. E7

(5) Assembly of Take-up and Supply Loading arm

Move Shaft holder to the unloading position. Adjust the phase of Take-up and Supply loading arm and insert the arm to the shaft (Fig. E8).

BOTTOM VIEW

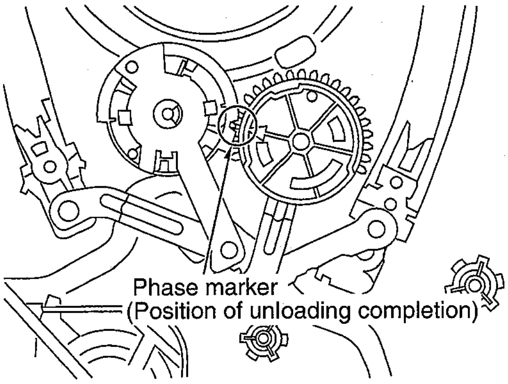

Phase marker
(Position of unloading completion)

Fig. E8

(6) Assembly of Take-up reel table and Take-up brake arm unit

Put washer, (Fig. E10) Take-up reel table and Take-up brake arm unit together (Fig. E9).

NOTE: The shape between portion A for Take-up reel table and portion B for Supply reel table is different.

Therefore, confirm the shape of portion A and B before mounting reel tables. If Take-up reel table has been confused with Supply reel table and they have been installed, the trouble of reel table rotation slip happens (Fig. E11).

TOP VIEW

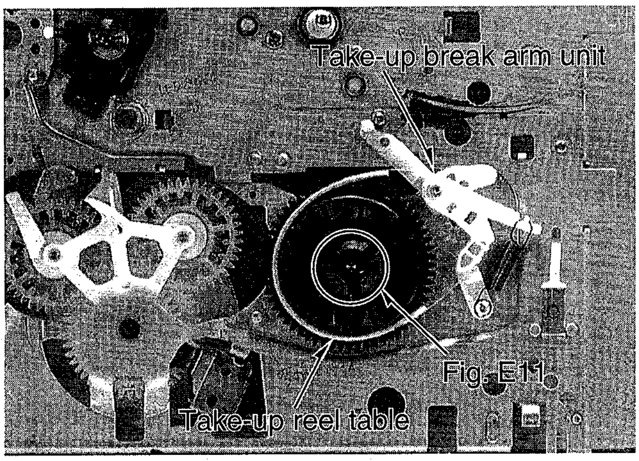

Take-up break arm unit
Fig. E11
Take-up reel table

Fig. E9

SIDE VIEW

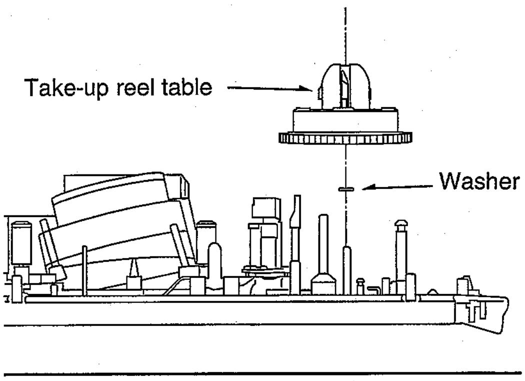

Take-up reel table
Washer

Fig. E10

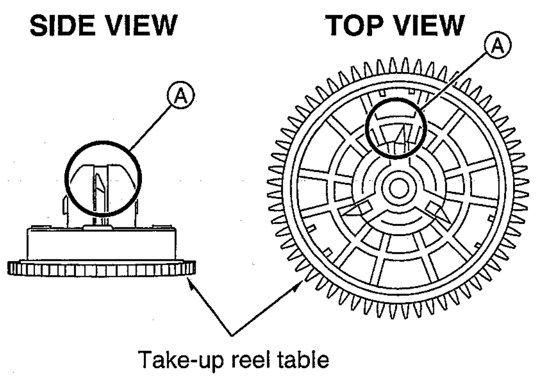

SIDE VIEW
TOP VIEW
Ⓐ
Ⓐ
Take-up reel table

Fig. E11

(7) Assembly of Supply reel table and Tension arm unit

Install washer (Fig. E13) and Supply reel table. Insert Tension arm unit to Tension arm projection and hang Tension spring with Supply spring arm projection (Fig. E12).

※1 Pay an attention of Position of the Supply spring arm.

NOTE: The shape between portion A for Take-up reel table and portion B for Supply reel table is different.

Therefore, confirm the shape of portion A and B before mounting reel tables. If Take-up reel table has been confused with Supply reel table and they have been installed, the trouble of reel table rotation slip happens (Fig. E14).

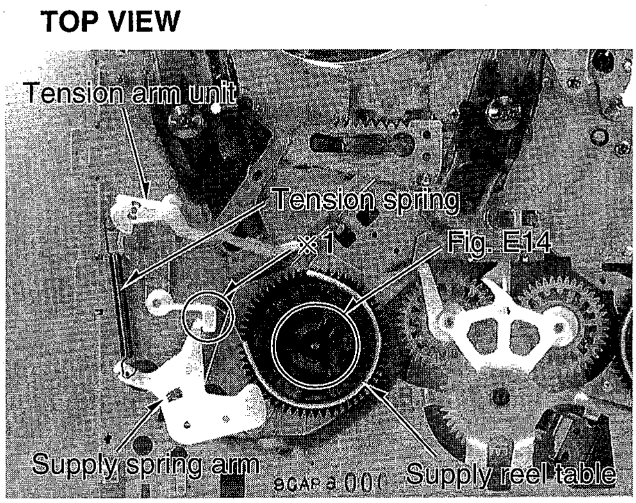

TOP VIEW
Tension arm unit
Tension spring
※1
Fig. E14
Supply spring arm
Supply reel table

Fig. E12

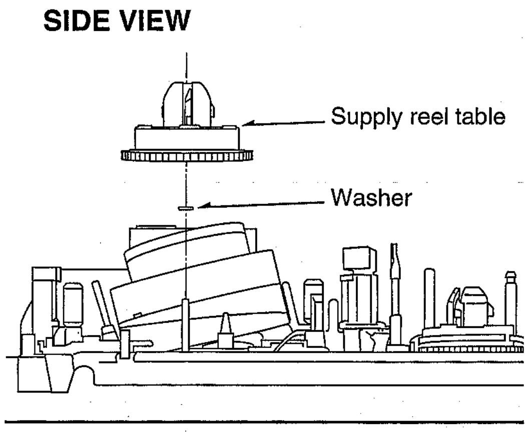

SIDE VIEW
Supply reel table
Washer

Fig. E13

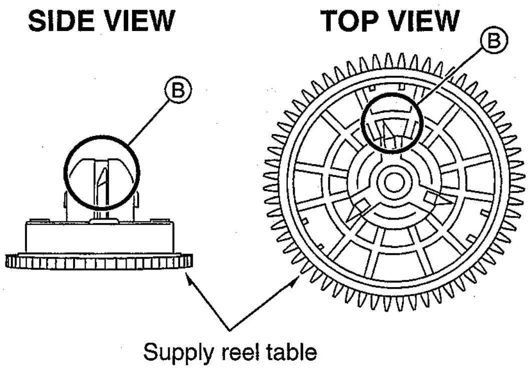

SIDE VIEW
TOP VIEW
Ⓑ
Ⓑ
Supply reel table

Fig. E14

(8) Assembly of Drive main lever arm

Install Drive main lever arm so that Drive main lever arm fits to the groove of Chassis.

And rotate Drive main lever arm to the clockwise in order to adjust the phase between the hole of the position fixture and the penetration hole of Chassis (Fig. E15).

TOP VIEW

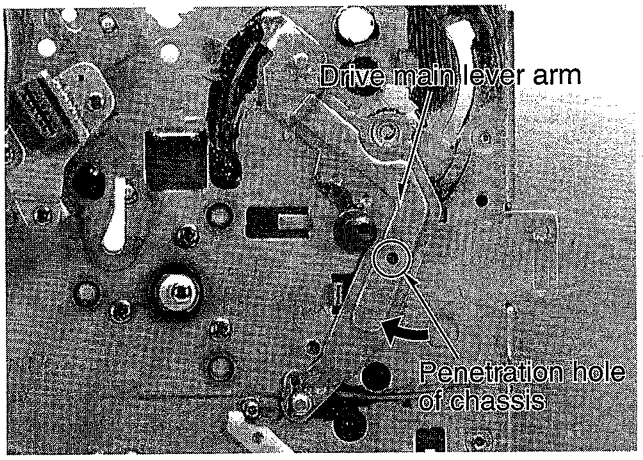

Drive main lever arm
Penetration hole of chassis

Fig. E15

(9) Assembly of Conversion lever A, P5 arm and Main lever

Install Conversion lever A and P5 arm (Fig. E16, E17).

Adjust the phase of Main lever so that Main lever fits the projection of Loading rack.

Main lever has to be locked at the projection of Chassis by 1 tab, and 2 tabs of Prism LED (Fig. E16).

※ Conversion lever A, P5 arm, Supply brake arm unit and the projection of Take-up brake arm have to be installed to the groove under the Main lever (Fig. E18).

TOP VIEW

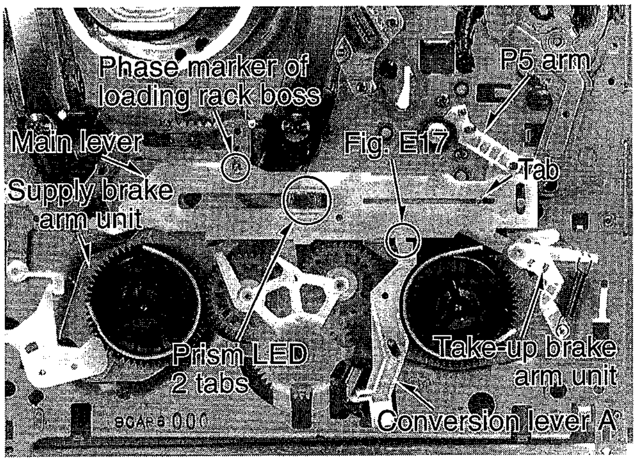

Phase marker of loading rack boss
P5 arm
Main lever
Fig. E17
Tab
Supply brake arm unit
Prism LED 2 tabs
Take-up brake arm unit
Conversion lever A

Fig. E16

TOP VIEW

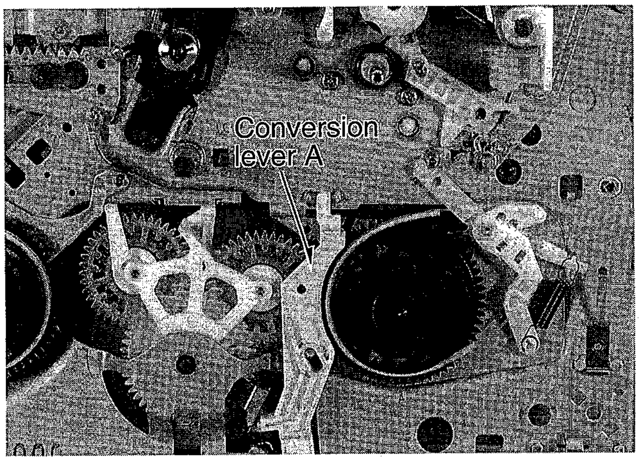

Conversion lever A

Fig. E17

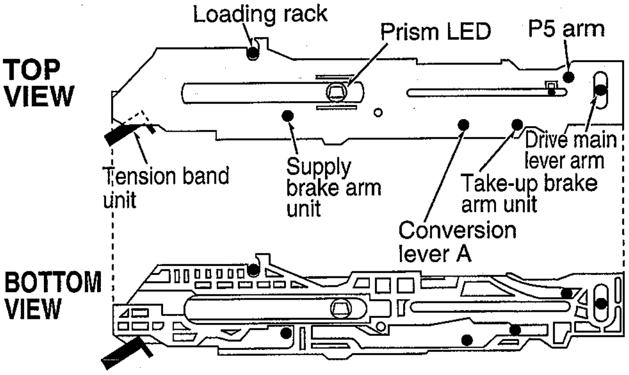

TOP VIEW
Loading rack
Prism LED
P5 arm
Drive main lever arm
Tension band unit
Supply brake arm unit
Take-up brake arm unit
Conversion lever A
BOTTOM VIEW

Fig. E18

(10) Assembly of Drive rack arm

Install Drive rack arm so that Drive rack arm fits the groove of Chassis and rotate it to the clockwise in order to fit the penetration hole of Chassis (Fig. E19).

TOP VIEW

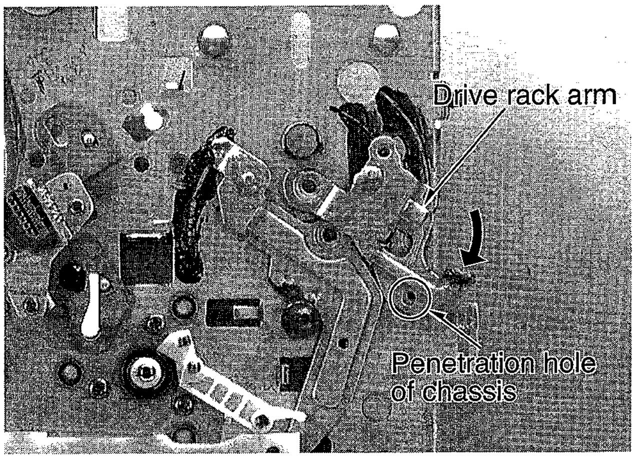

Drive rack arm
Penetration hole of chassis

Fig. E19

(11) Assembly of Main cam gear
Install Main cam gear so that Main cam gear fits the penetration hole of Chassis (Fig. E20) and fix it by the snap washer from the bottom of Chassis (Fig. E21).

TOP VIEW

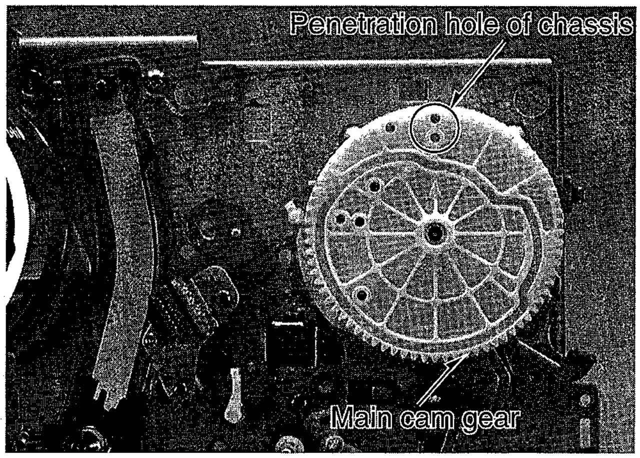
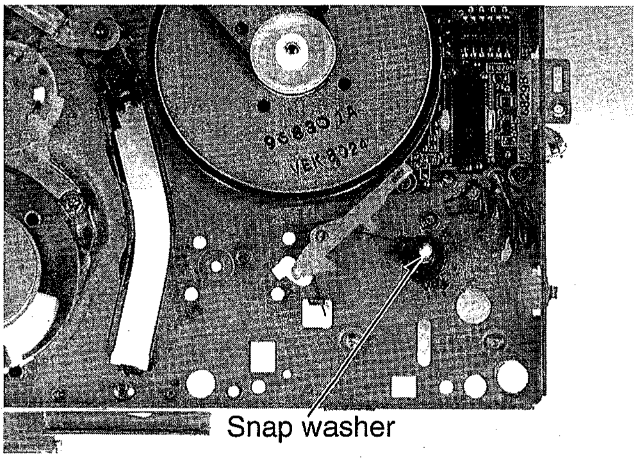

Penetration hole of chassis
Main cam gear

Fig. E20

BOTTOM VIEW


Snap washer

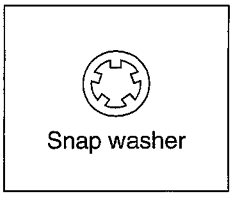

Snap washer

Fig. E21

(12) Assembly of Loading motor unit
Install Loading motor unit so that Loading motor unit fits the groove of Chassis (Fig. E22).

(13) Assembly of Pinch arm
Put Pinch arm together and install Opener piece to fix Pinch arm (Fig. E22).

TOP VIEW

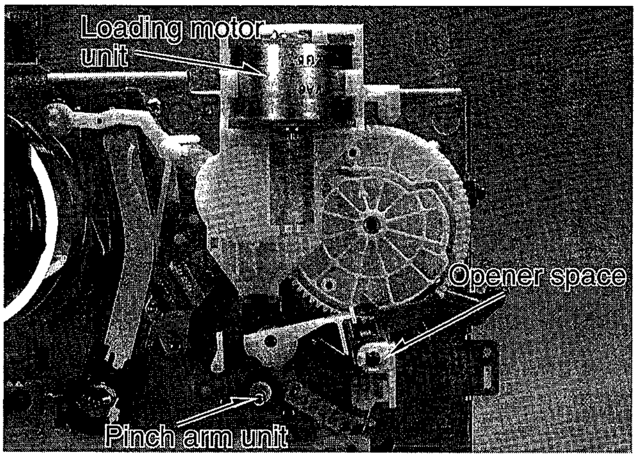

Loading motor unit
Opener space
Pinch arm unit

Fig. E22

4-3. Assembly of mechanism chassis

1. Assembly of Mechanism chassis

(1) Adjust the phase of Position switch in Main C.B.A..
Rotate Position switch until the click point. The projection of Position switch should be set to just above (Fig. F1).

TOP VIEW

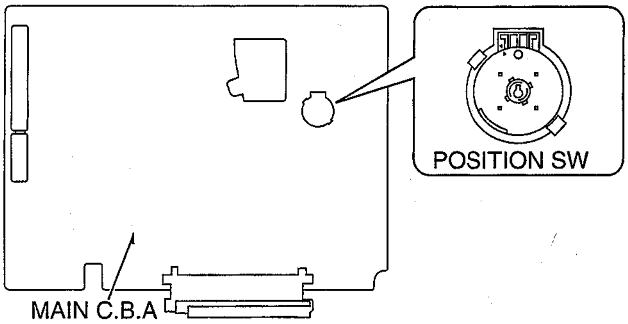

POSITION SW
MAIN C.B.A

Fig. F1

(2) Assembly of Mechanism chassis

Put Mechanism chassis on Main C.B.A. and fix it by 5 screws (3 red screws and 2 gold screws). Connect P3001, P2502 and P4002 (Fig. F2).

TOP VIEW

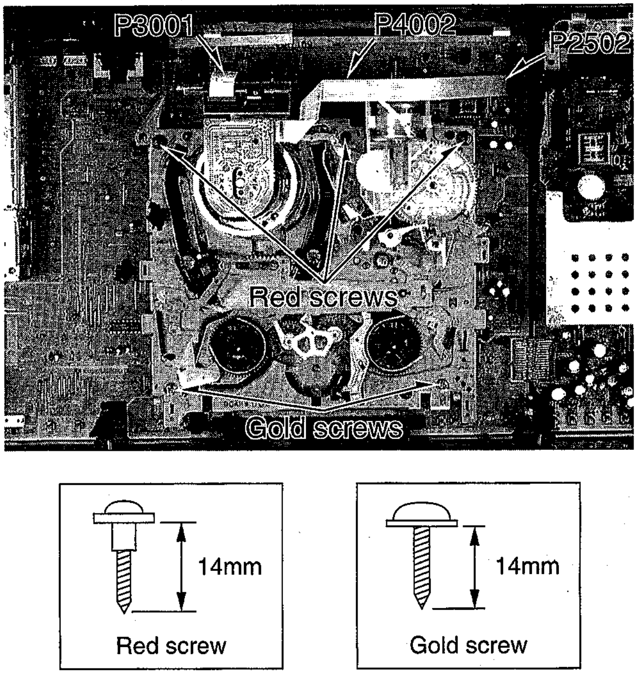

P3001
P4002
P2502
Red screws
Gold screws
14mm
Red screw
14mm
Gold screw

Fig. F2

※ The red screws has a gap among the chassis. Therefore be careful not to tighten too much.

2. Assembly of Cassette holder unit

(1) Assembly of Main shaft

Install Main shaft so that Main shaft fits the groove of Chassis (Fig. F3).

TOP VIEW

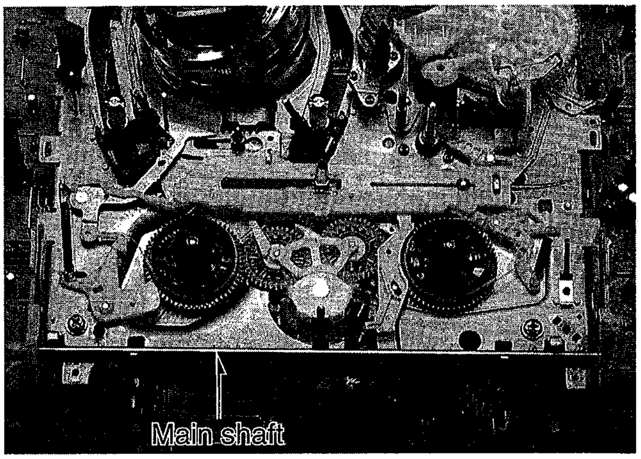


Fig. F3

(2) Assembly of Left & Right side plate

Install Left side plate so that Left side plate fits the groove of Chassis and fix it by the red screws.

After adjustment the phase of waper arm and Drive rack (Fig. F5), install Right side plate so that Right side plate fits the groove of Chassis and fix it by 2 red screws. Hang connection spring on the projection of Drive rack arm (Fig. F4, F5).

TOP VIEW

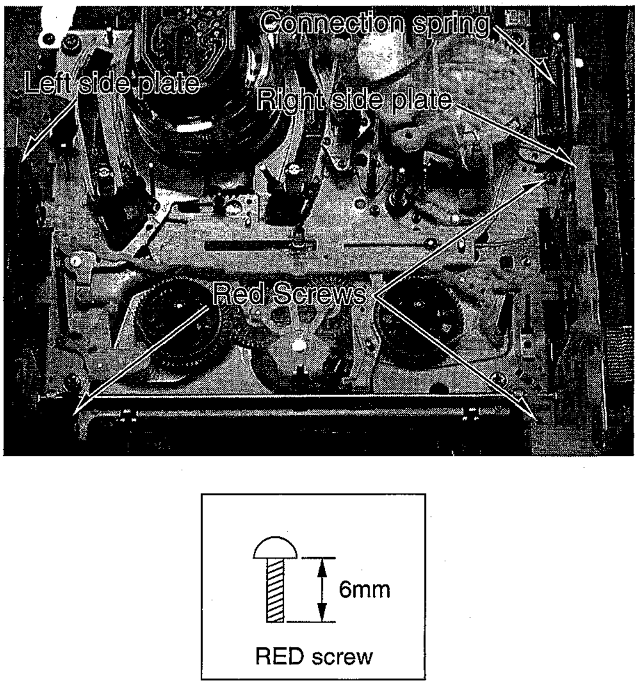

Connection spring
Left side plate
Right side plate
Red Screws
6mm
RED screw

Fig. F4

SIDE VIEW

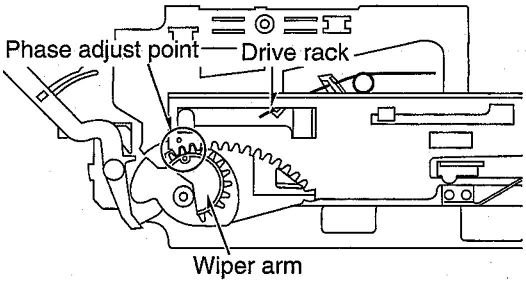

Phase adjust point
Drive rack
Wiper arm

Fig. F5

TOP VIEW

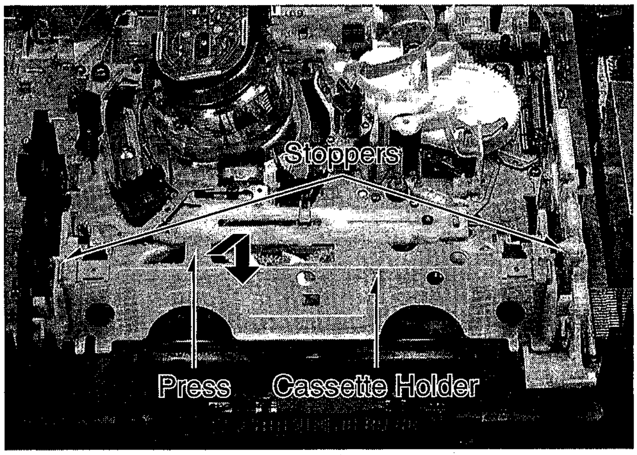

Stoppers
Press
Cassette Holder

Fig. F6

(3) Assembly of Cassette holder

Install Cassette holder so that Cassette holder fits the groove of Waper arm installed in Main shaft (Fig. F6, F7).

TOP VIEW

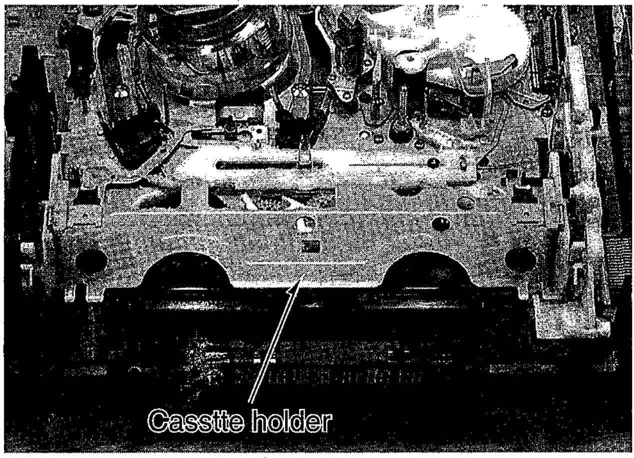

Casstte holder

Fig. F7

(4) Assembly of Top plate

Install Top plate so that Top plate fits the groove of Left and Right side plate.

※ Fix Top plate by tightening screw when the tabs of Left and Right side plate broke (Fig. F8).

TOP VIEW

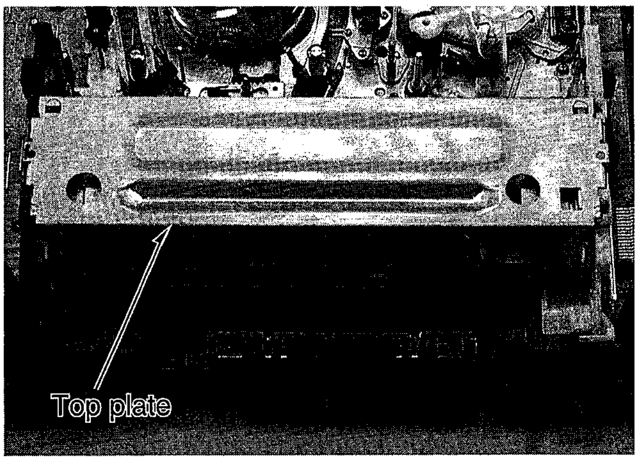
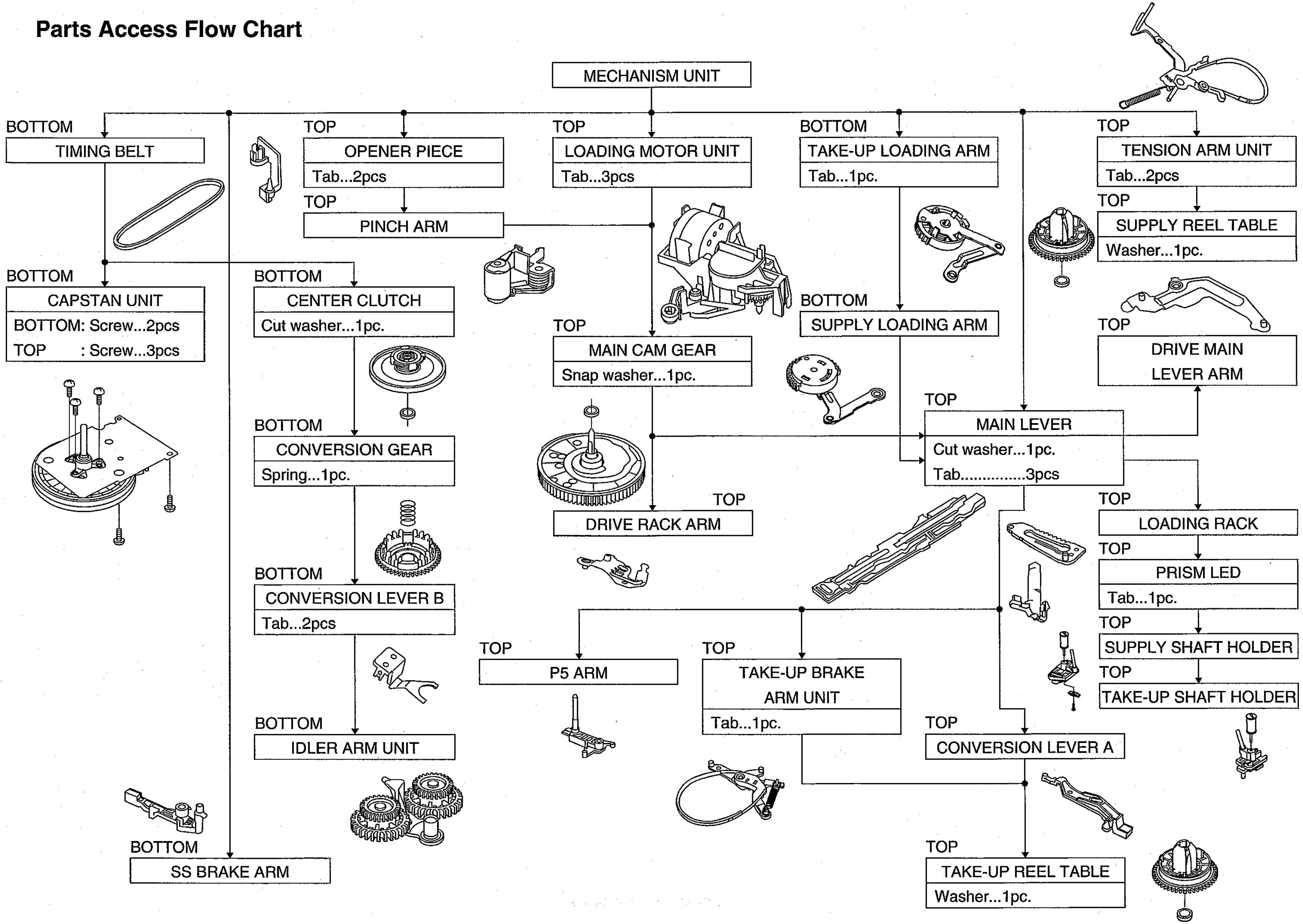


Fig. F8

(5) Install Front panel unit and Top panel

Parts Access Flow Chart


MECHANISM UNIT
BOTTOM
TIMING BELT
TOP
OPENER PIECE
Tab...2pcs
TOP
PINCH ARM
TOP
LOADING MOTOR UNIT
Tab...3pcs
BOTTOM
TAKE-UP LOADING ARM
Tab...1pc.
TOP
TENSION ARM UNIT
Tab...2pcs
TOP
SUPPLY REEL TABLE
Washer...1pc.
BOTTOM
CAPSTAN UNIT
BOTTOM: Screw...2pcs
TOP : Screw...3pcs
BOTTOM
CENTER CLUTCH
Cut washer...1pc.
TOP
MAIN CAM GEAR
Snap washer...1pc.
BOTTOM
SUPPLY LOADING ARM
TOP
DRIVE MAIN
LEVER ARM
TOP
MAIN LEVER
Cut washer...1pc.
Tab...............3pcs
BOTTOM
CONVERSION GEAR
Spring...1pc.
TOP
DRIVE RACK ARM
TOP
LOADING RACK
TOP
PRISM LED
Tab...1pc.
BOTTOM
CONVERSION LEVER B
Tab...2pcs
TOP
SUPPLY SHAFT HOLDER
TOP
TAKE-UP SHAFT HOLDER
TOP
P5 ARM
TOP
TAKE-UP BRAKE
ARM UNIT
Tab...1pc.
BOTTOM
IDLER ARM UNIT
TOP
CONVERSION LEVER A
BOTTOM
SS BRAKE ARM
TOP
TAKE-UP REEL TABLE
Washer...1pc.

5. MECHANICAL ADJUSTMENT PROCEDURE

5-1. Tension post position adjustment

Equipment required: Hex. Wrench (VFK0326)
Specification: 50.5±1.5 mm

(1) Disconnect the AC plug.
(2) Remove the TOP PLATE.
(3) Turn the LOADING MOTOR until the loading completes.
(4) Adjust the hole of Tension Band Fastener by Hex Wrench until the distance between the Tension Post and the center of Supply reel table is 50.5±1.5 mm as shown in Fig. M1.

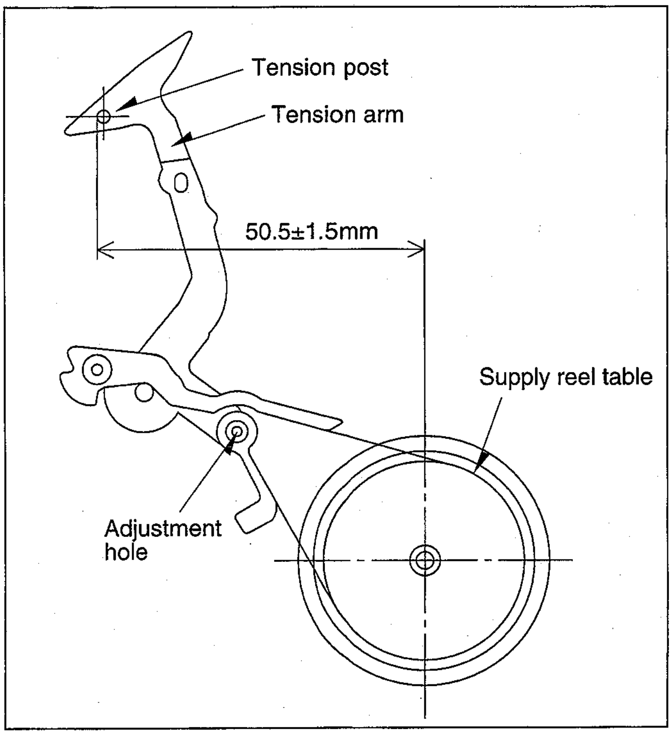

Tension post
Tension arm
50.5±1.5mm
Supply reel table
Adjustment hole

Fig. M1

5-2. Back tension adjustment

Equipment required:
Back Tension Meter (VFK0132)
VHS Cassette tape (180 minutes tape: PAL)
VHS Cassette tape (120 minutes tape: NTSC)
Specification: 22.5–27.5g

(1) Playback the cassette tape from the beginning and wait until the tape movement get the stabilization. (for approx. 10–20 seconds)
(2) Insert the Back Tension Meter into the path of a tape, and measure the back tension to be within specification as shown in Fig. M2.

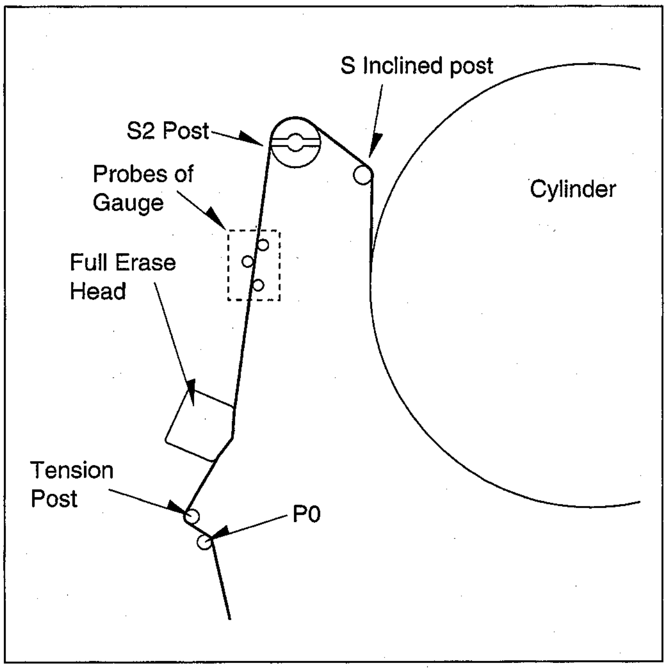

S Inclined post
S2 Post
Probes of Gauge
Cylinder
Full Erase Head
Tension Post
P0

Fig. M2

(3) If it is out of specification, change the spring notch as shown in Fig. M3.

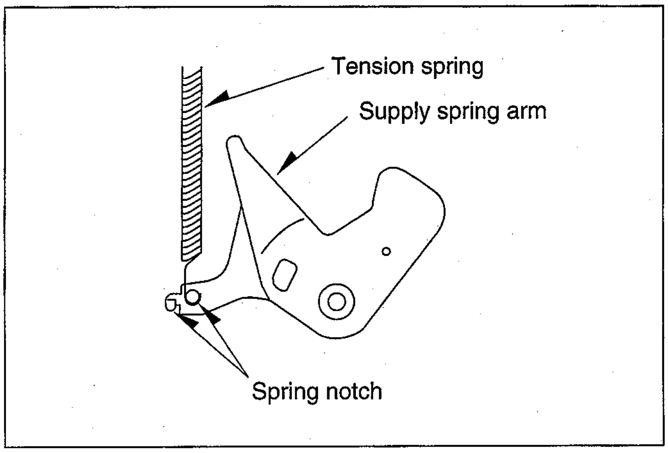

Tension spring
Supply spring arm
Spring notch

Fig. M3

5-3. P2 and P3 posts adjustment (PREADJUSTMENT)

Equipment Required:
Post Adjustment Screwdriver (VFK0329)

(1) Remove the Top Plate.

(2) Turn the Loading Motor until the unloading completes.

(3) Rotate the P2 and P3 Posts clockwise to the end. (Fig. M4)

(4) Rotate the P2 and P3 Posts twice counterclockwise. (Fig. M4)

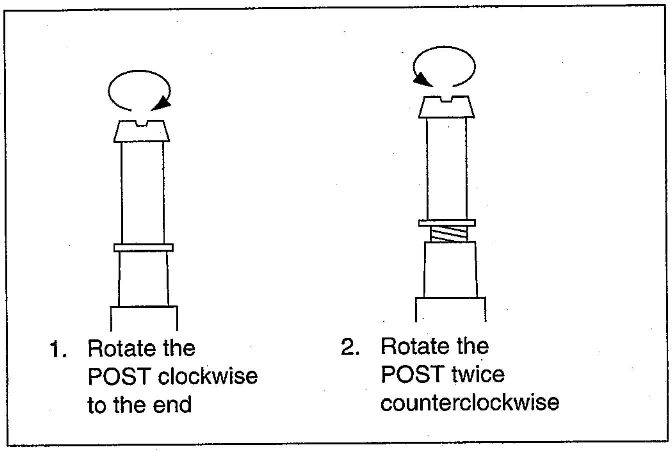

1. Rotate the POST clockwise to the end
2. Rotate the POST twice counterclockwise

Fig. M4

(5) Playback the cassette tape and make sure that the edges of the tape are not curling at the bottom or top end of the P2, P3, and P4 Posts as shown in Fig. M5.

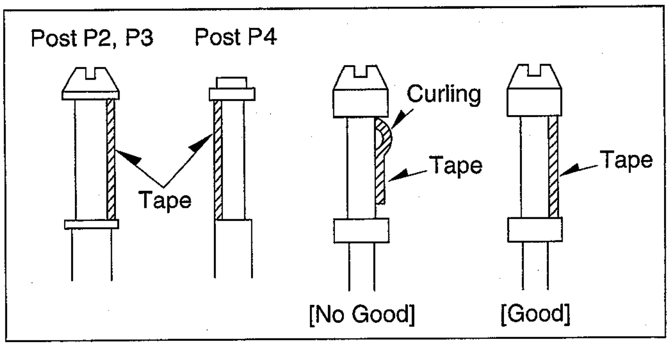


Fig. M5

(6) If the curling appears, readjusts the P2 and P3 Posts.

5-4. Tape interchangeability adjustment

Carry out the following procedures for Tape Interchangeability Adjustment to do it correctly and smoothly.

(1) P2 AND P3 POSTS ADJUSTMENT
(2) ADJUSTMENT OF P4 POST
(3) HEIGHT ADJUSTMENT OF A/C HEAD
(4) FINE-ADJUSTMENT OF A/C HEAD
(5) ADJUSTMENT OF X-VALUE (PREADJUSTMENT)
(6) FINE-ADJUSTMENT OF X-VALUE

If the Tape Interchangeability Adjustment is not perfect, repeat the above procedures from (1) to (6).

CAUTIONS: To make an Adjustment Mode for Tape Interchangeability, press the FF and EJECT buttons simultaneously 3 times to set the Service Mode 2.

In case of VCR mounted shuttle ring, turn the shuttle ring to FF and then press EJECT button.

In Loewe model, STOP button is used instead of FF button.

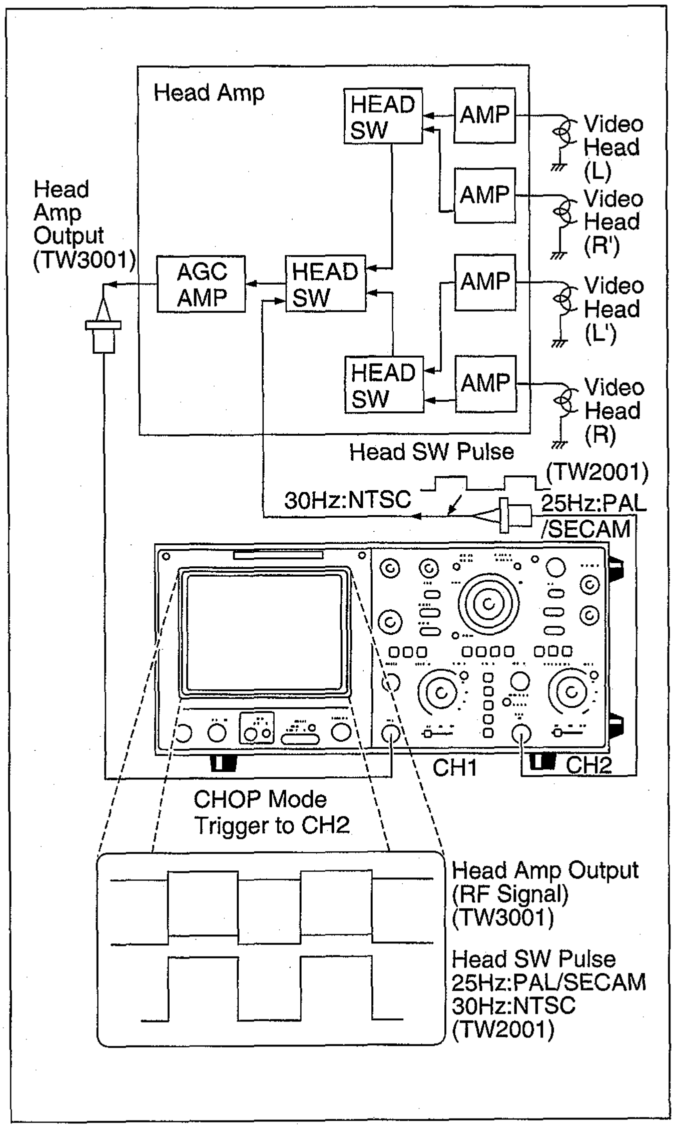
NOTE: Cleaning the Tape Transport path before adjusting of Tape Interchangeability. The detail portion is shown below.
P0 Post, Tension Posts, FE Head, P2 Post, Supply Inclined Post, Cylinder Unit, Take-up Inclined Post, P3 Post, A/C Head, P4 Post, Pinch Roller, Capstan Shaft, P5 Post. FE Head, Cylinder Unit, A/C Head and Capstan Shaft are more important parts and pay an attention to clean them.

5-4-(1). P2 AND P3 POSTS ADJUSTMENT

Equipment required:
Alignment Tape (PAL/SECAM: VFJ8125H3F)
(NTSC: VFM8080HQFP)
Post Adjustment Screwdriver (VFK0329)

(1) Connect the oscilloscope to the output of the Head Amp as shown in Fig. M6.

NOTE: To get a stable waveform of the Head Amp output (observation point TW3001 and TW2001 located on Main C.B.A.) on the oscilloscope, use the head switching pulse as a triggering signal as shown in Fig. M6.



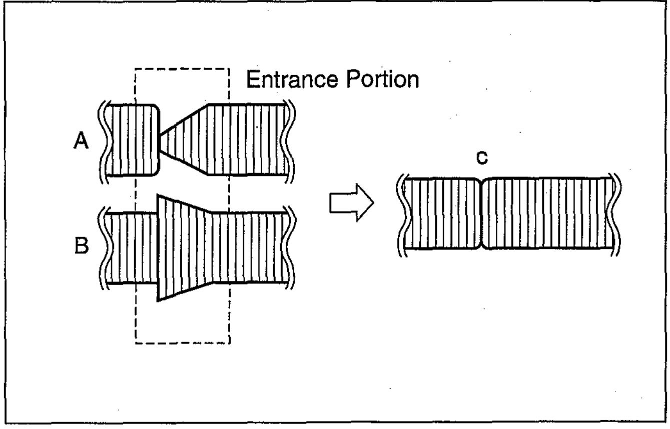
Head Amp
HEAD SW
AMP
Video Head (L)
AMP
Video Head (R')
Head Amp Output (TW3001)
AGC AMP
HEAD SW
AMP
Video Head (L')
HEAD SW
AMP
Video Head (R)
Head SW Pulse
(TW2001)
30Hz:NTSC
25Hz:PAL /SECAM
CH1
CH2
CHOP Mode
Trigger to CH2
Head Amp Output (RF Signal) (TW3001)
Head SW Pulse 25Hz:PAL/SECAM 30Hz:NTSC (TW2001)

Fig. M6 Connect of Oscilloscope

(2) Playback the Alignment Tape.

(3) If the RF envelope appears like example "A" or "B" in Fig. M7, then adjustment of the tape guide post (P2: Entrance) is necessary.

(4) Adjust the tape guide post (P2) with the post adjustment screwdriver so that the RF envelope waveform at the entrance portion becomes flat as shown in Fig. M7 "C".

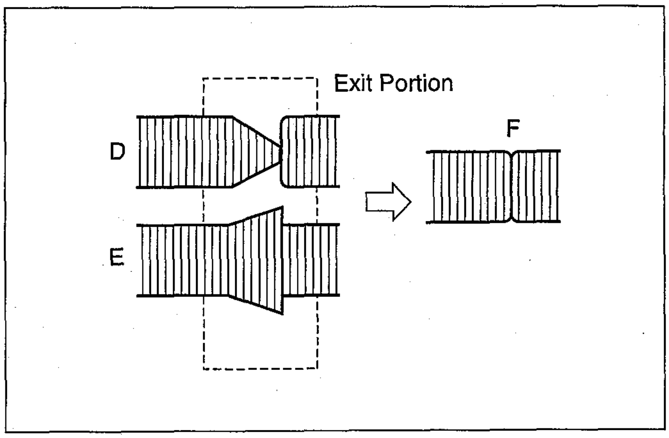


Entrance Portion
A
B
C

Fig. M7

(5) If the RF envelope appears like "D" or "E" in Fig. M8, then adjustment of the tape guide post (P3: Exit) is necessary.

(6) Adjust the tape guide post (P3) in the same manner as the P2 post so that the exit portion becomes flat as shown in Fig. M8 "F".



Exit Portion
D
E
F

Fig. M8

(7) Keep pressing the tracking up/down (∧ or ∨) buttons on the remote controller unit. The output envelope should vary nearly parallel with other condition as shown in Fig. M9.

(8) Set the tracking control into center fix position by pressing the tracking up/down (∧ and ∨) simultaneously and adjust for maximum RF envelope, whilst being as flat as possible.

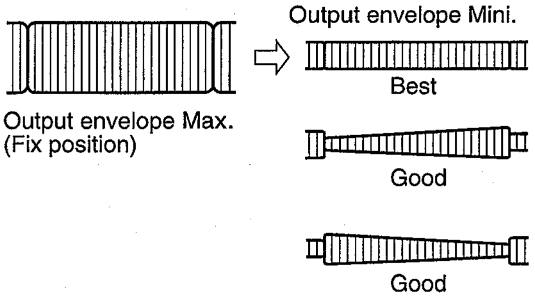


Fig. M9

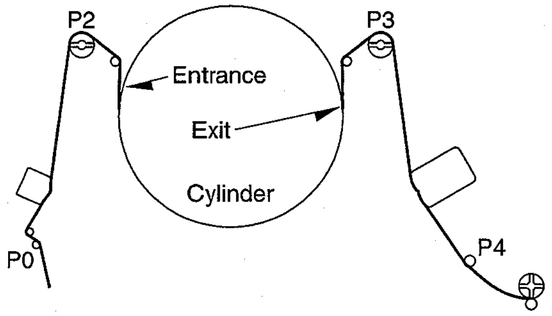


Fig. M10 Loading of Posts

5-4-(2). ADJUSTMENT OF P4 POST

(1) Install A/C Head on the Mechanism Chassis by one screw.

(2) Playback the Alignment Tape.

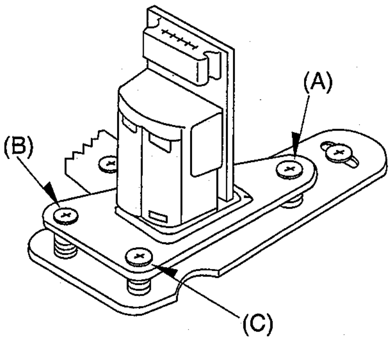
(3) Rotate the screw (A) or (B) until the wrinkle appears on the lower edge of tape at P4 Post.

(4) Rotate the screw (A) or (B) until the wrinkle just disappears on the lower edge of tape at P4 Post.

(5) Connect the oscilloscope to audio output terminal.

(6) Rotate the screw (C) until audio signal is maximized.

NOTE: 1. The relation between the rotation direction of screws (A) and (B) and the condition of wrinkle on the lower edge at P4 Post as shown in Fig. M11.
2. Make sure that there is not the inclined wrinkle between P4 Post and Pinch Roller.



	SCREW (A)	SCREW (B)
So wrinkle appears on the lower edge of tape	COUNTER CLOCKWISE	CLOCKWISE
So wrinkle disappears on the lower edge of tape	CLOCKWISE	COUNTER CLOCKWISE

Fig. M11

5-4-(3). HEIGHT ADJUSTMENT OF A/C HEAD

<When moving the A/C Head up>

(1) Rotate the screw (A) counterclockwise until the wrinkle appears on the lower edge of tape at P4 Post.

(2) Rotate the screw (B) counterclockwise until the wrinkle just disappears on the lower edge of tape at P4 post.

(3) Rotate the screw (C) counterclockwise until the audio signal is maximized.

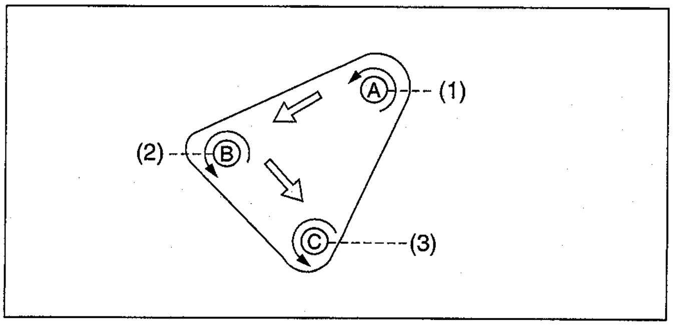


Fig. M12

<When moving the A/C Head down>

(1) Rotate the screw (B) clockwise until the wrinkle appears on the lower edge of tape at P4 Post.

(2) Rotate the screw (A) clockwise until the wrinkle just disappears on the lower edge of tape at P4 post.

(3) Rotate the screw (C) clockwise until the audio signal is maximized.

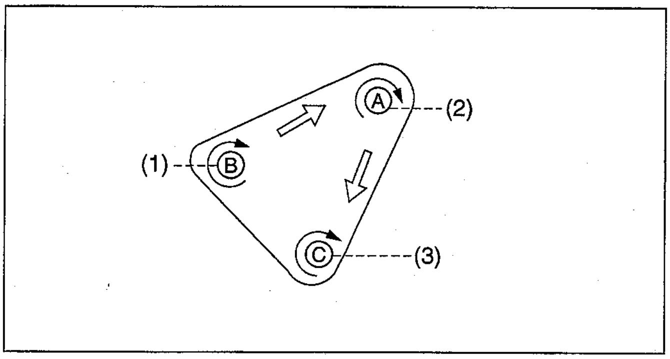


Fig. M13

5-4-(4). FINE-ADJUSTMENT OF A/C HEAD

(1) Connect the oscilloscope to the output of the Head Amp as shown in Fig. M6.

(2) Playback the Alignment Tape.

(3) Make sure that the condition of the wrinkle at P4 Post. If the condition of the wrinkle is out of specification, P4 Post adjustment has to be performed as follows.

Turn the screw (A) counterclockwise until the wrinkle appears on the lower edge of tape at P4 Post.

Turn the screw (A) clockwise until the wrinkle disappears on the lower edge of tape at P4 Post.

(4) Turn the screw (C) until the audio signal is maximized.

NOTE: Make sure that the audio output does not increase when push the upper and lower edges of tape around A/C Head.

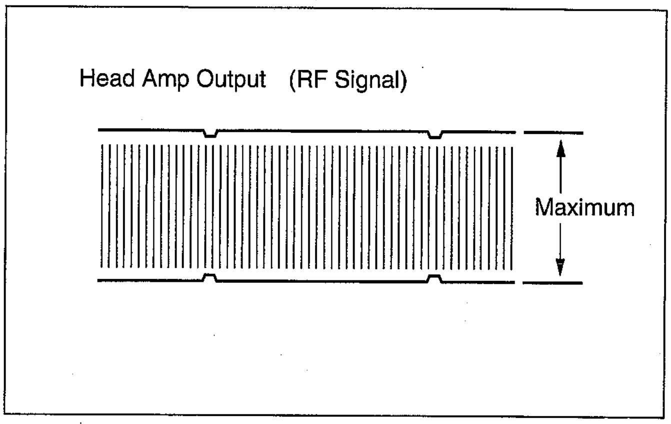


Fig. M14

5-4-(5). ADJUSTMENT OF X-VALUE (PREADJUSTMENT)

Equipment required:
Fine Adjustment Gear Drive (VFK0330)
Specification: Less than 15 msec.

(1) Connect the oscilloscope to the audio output and the video output. Both output signals should be fixed by the external trigger.

(2) Playback the Alignment Tape and set the tracking control into center fix position.

(3) Adjust A/C Head position by the Fine Adjustment Gear Driver (VFK0330) to meet the signal fault portion of the audio output and the video output signals (Less than 15 msec.).

(4) After meeting the signal fault portion, adjust A/C Head position by the Fine Adjustment Gear Driver (VFK0330) until the video envelope is maximized.

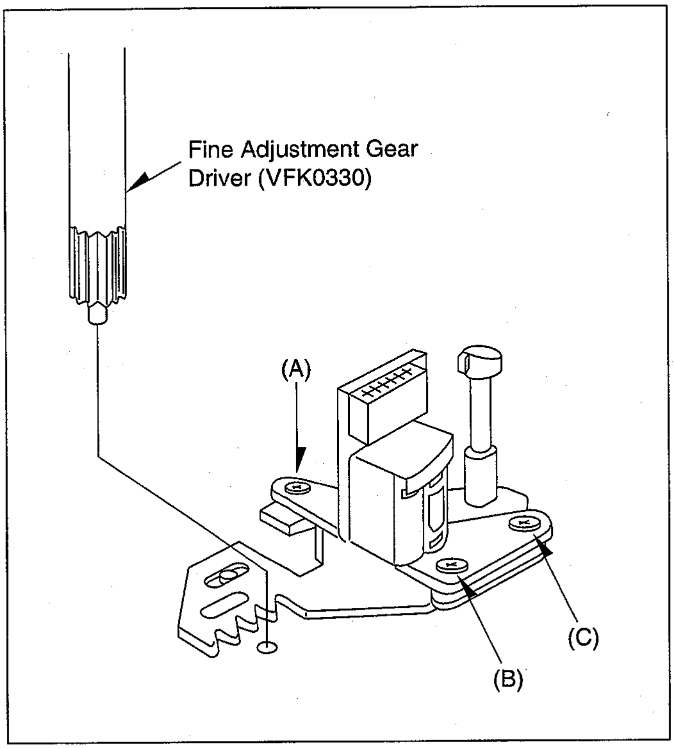


Fig. M15

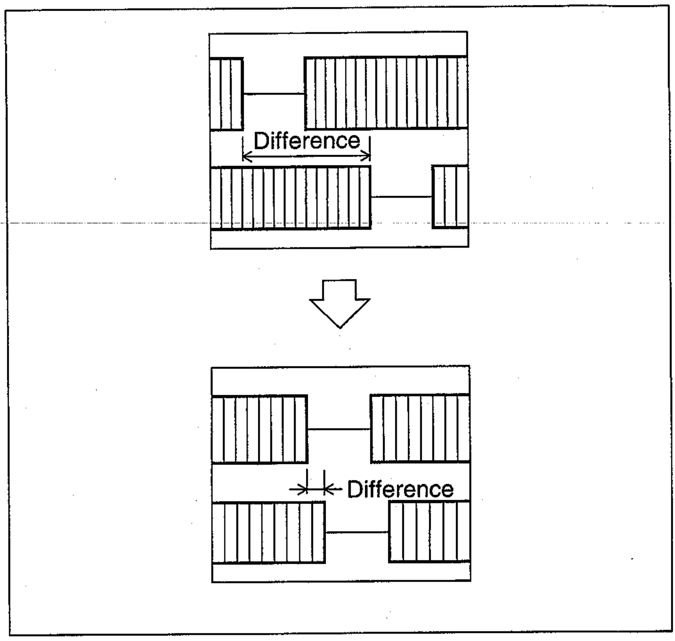


Fig. M16

5-4-(6). FINE-ADJUSTMENT OF X-VALUE

Equipment required:
Fine Adjustment Gear Drive (VFK0330)

(1) Connect the oscilloscope to the audio output and the video output. Both output signals should be fixed by the external trigger.

(2) Playback the alignment tape and set the tracking control into center fix position.

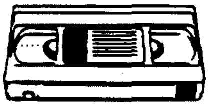
(3) Adjust A/C Head position by the Fine adjustment Gear Driver (VFK0330) until the video envelope level is maximized at the tracking center fix position.

NOTE: During X-Value Fine Adjustment, in case the video envelope level became 0, Preadjustment of X-value should be adjusted again due to it is possibility to vary the X-value adjustment.

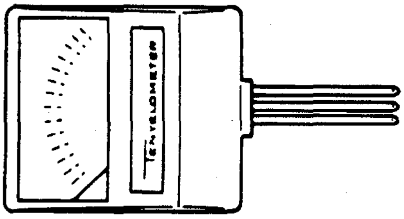
Servicing Fixtures & Tools

VFJ8125H3F
PAL VHS Alignment Tape

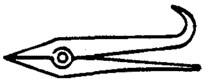
VFM8080HQFP
NTSC VHS Alignment Tape



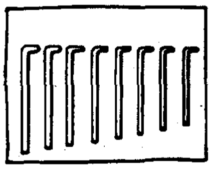
VFK0132
Back Tension Meter
(Tentelometer, Made in U.S.A.)



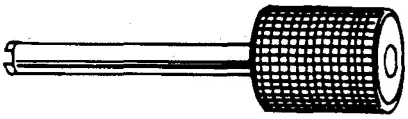
VFK0335
Retaining Ring Remover
(3mm/4mm)



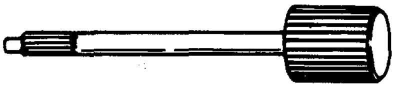
VFK0326
Hex. Wrench Set
(0.7, 0.9, 1.2, 1.5, 1.6, 2.0, 2.4, 3.0mm)



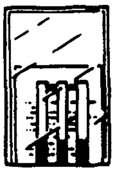
VFK0329
Post Adjustment Screwdriver



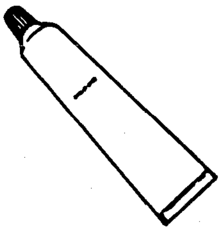
VFK0330
Fine Adjustment Gear Driver



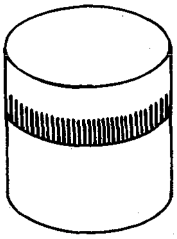
VFK27
Hand Cleaning Stick



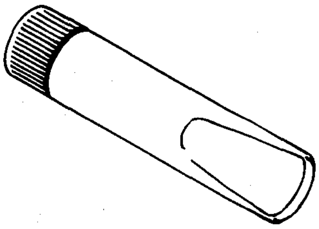
VFK1024
Morlytone Grease



VFK1298
Floil Grease



VFK1301
Silicone Grease



6. SELF-TEST INDICATION DISPLAY

This VTR has a self-diagnosis and display function. If the VTR detects trouble during installation or during use, one of the following fault indication codes will automatically appear in the VTR display. Fault indication codes are displayed in the form of a single English letter followed by two numbers, as for example "H01".

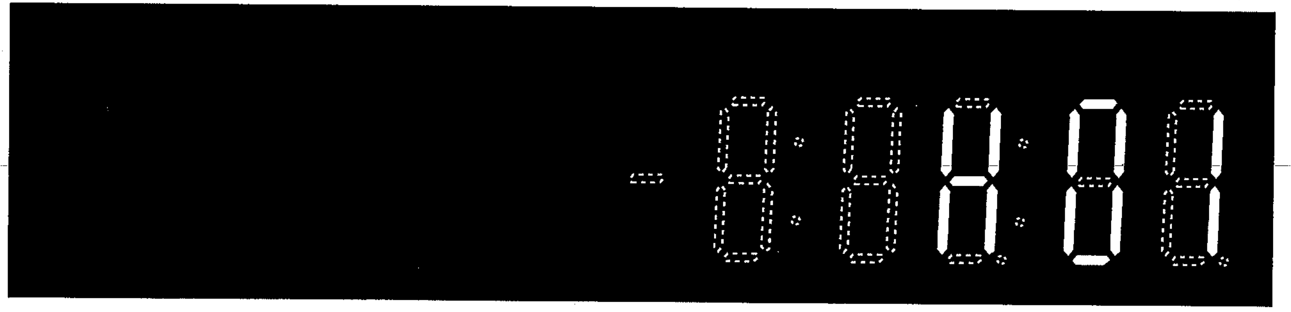
Note:
1. The indication "U" is displayed on the FIP while power remains on.
2. Otherwise, the indication "H" or "F" is displayed on the FIP, and the power is automatically turned off.

   When the power is turned on again, the fault indication code will disappear and the unit will retrun to normal display mode (either clock or counter is displayed).
3. This fault indication code will be stored in the microprocessor even with the AC plug disconnected.

   The two-digit number portion of the stored fault indication code can be redisplayed in the FIP's "second" display portion (the last 2 digits on the light) by placing the unit is Service Mode Number 2 when turning on Service Information Display as for example "01" or "02" etc.

   If a second error occurs, only the most recent error will be displayed and stored.
4. To erase the stored fault indication code data, press FF and EJECT buttons for 5 seconds.

< FIP >



INDICATION	CAUSE	REMEDY/CHECK
U 10	Dew formation.	Wait until the indication disappears.
H 01	After cylinder lock is detected, the cylinder does not start rotating again even after tape unloading.	Check the cylinder unit and the cylinder motor drive circuit.
H 02	Cassette tape is not wound up during tape unloading except Eject mode.	Check the capstan unit and the capstan motor drive circuit.
F 03	Mechanism locks during mode transition except Eject mode.	1. Check the loading motor drive circuit. 2. Check the mechanism phase alignment. 3. Check the mode switch.
F 04	Mechanism locks during tape unloading.	1. Check the loading motor drive circuit. 2. Check the mechanism phase alignment.
F 06	Mechanism locks after tape unloading in Eject mode.	1. Check the loading motor drive circuit. 2. Check the mechanism phase alignment for cassette holder unit.
F 07	During recording mode recording signal is less than the normal condition.	Protection of the overcurrent flowing in transistor which produce the power supply for recording mode.
F 08	Recording circuit works except recording mode.	Check the recording circuit.
H 16	Cylinder lock detection.	Check the cylinder unit and the cylinder motor drive circuit.
H 17	Supply reel mechanism lock detection.	Check the supply reel mechanism and the supply reel circuit.
H 18	Take-up reel mechanism lock detection.	Check the take-up reel mechanism and the take-up reel circuit.

Fig. T1 Self-Test indication Display

7. SERVICE INFORMATION DISPLAY

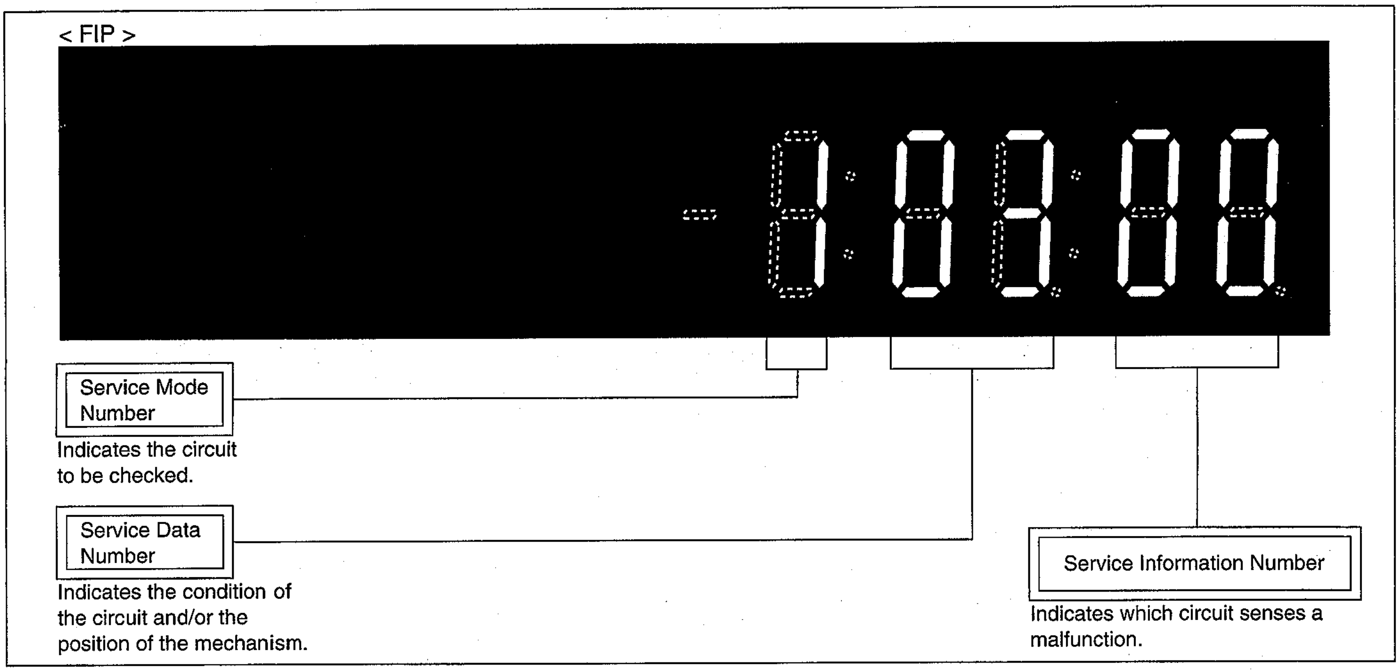

< FIP >
Service Mode Number
Indicates the circuit to be checked.
Service Data Number
Indicates the condition of the circuit and/or the position of the mechanism.
Service Information Number
Indicates which circuit senses a malfunction.

Fig. D1 Service Information Display

7-1. Purpose of Service Information Display

This information aids trouble shooting by indicating the source of the malfunction. The service mode number & service data number are used by the technician during repair while the service information can be used by consumer to diagnose malfunctions allowing the technician to provide a more accurate repair cost estimate and reduce repair time.

7-2. Turning on Service Information Display

Press FF and EJECT buttons simultaneously for more than 3 seconds. In case of VCR mounted shuttle ring, turn the shuttle ring to FF and then press EJECT button for more than 3 seconds.

In Loewe model, STOP button is used instead of FF button.

In the Service Information Display, there are four digits divided into 3 functions.

The first digit indicates which of the 7 service modes that the unit is currently in.

MODE 1: Checks tape protection circuit.
MODE 2: Checks tape transport mechanism.
MODE 3: Checks mode switching operation.
MODE 4: Checks control buttons.
MODE 5: Checks capstan motor.
MODE 6: Checks cylinder motor.
MODE 7: Checks loading/unloading operation.

The second and third digits are service data which indicate the condition of the circuit or mechanism being checked.

The forth digit is the service infromation display. it is to be used by the consumer to help determine the source of a malfunction. The service information display operates independently of the service modes and stores the fault indication in memory for as long as AC power is not supplied.

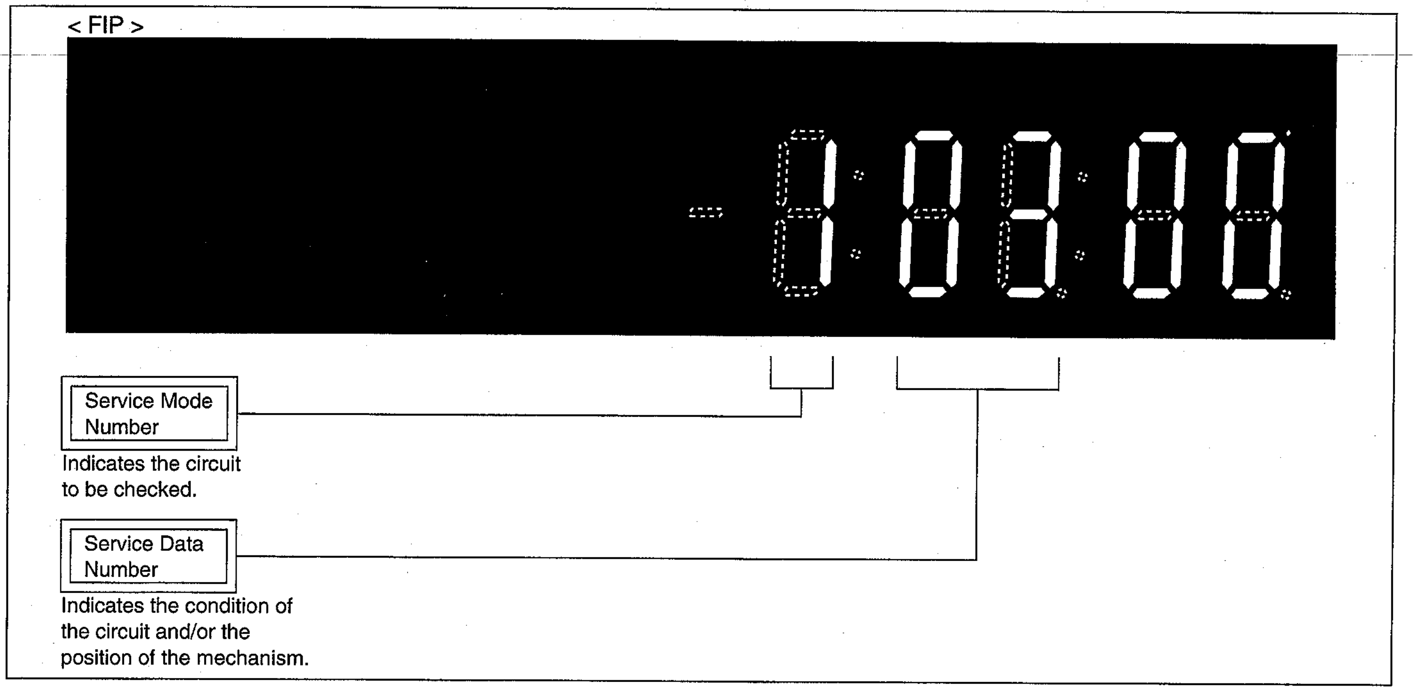

< FIP >
Service Mode Number
Indicates the circuit to be checked.
Service Data Number
Indicates the condition of the circuit and/or the position of the mechanism.

Fig. D2 Service Mode Number and Service Data Number on F.I.P.

7-3. Use of Service Modes

(1) Turn on Service information Display.

(2) To change Service Modes, press FF and EJECT buttons simultaneously.

(3) Mode 0: Storing the process number when the fault happened.

(4) Mode 1: Checks that the sensor LED, Supply & Take-up sensor circuits checks the circuits by blocking the light from the sensor LED to either or both Supply & Take-up Sensors. When the light is blocked to both sensors, “00” should be indicated on the service data number.
When the light is blocked to the supply sensor, “01” should be indicated.

(5) Mode 2: Checks the mode switch circuit while indicating mechanism position.
Service Data Numbers indicate the position of the mode switch and there by the mechanism position.

(6) Mode 3: Checks that mode switch circuit operations have been completed.
Service Data Number should indicate “00” after each mechanism operation is completed.

(7) Mode 4: Checks the operation circuit.
Indicates if SYSTEM CONTROL IC receives the operating commands from the mode buttons and/or remote controller.

(8) Mode 5: Checks the capstan motor circuit.
Indicates if the SYSTEM CONTROL IC has received the command to rotate the capstan motor.

(9) Mode 6: Checks the cylinder motor circuit.
SYSTEM CONTROL IC has received the command to rotate the cylinder motor.

(10) Mode 7: Checks the loading/unloading operation.
The loading motor rotates for loading operation when the "PLAY" button is pressed.
The loading motor rotates for unloading operation when the "STOP" button is pressed.
This mode can be displayed indefinitely until the OPERATE button is pressed.

<NOTE> Refer to Fig. D5 for details of Service Data Numbers.

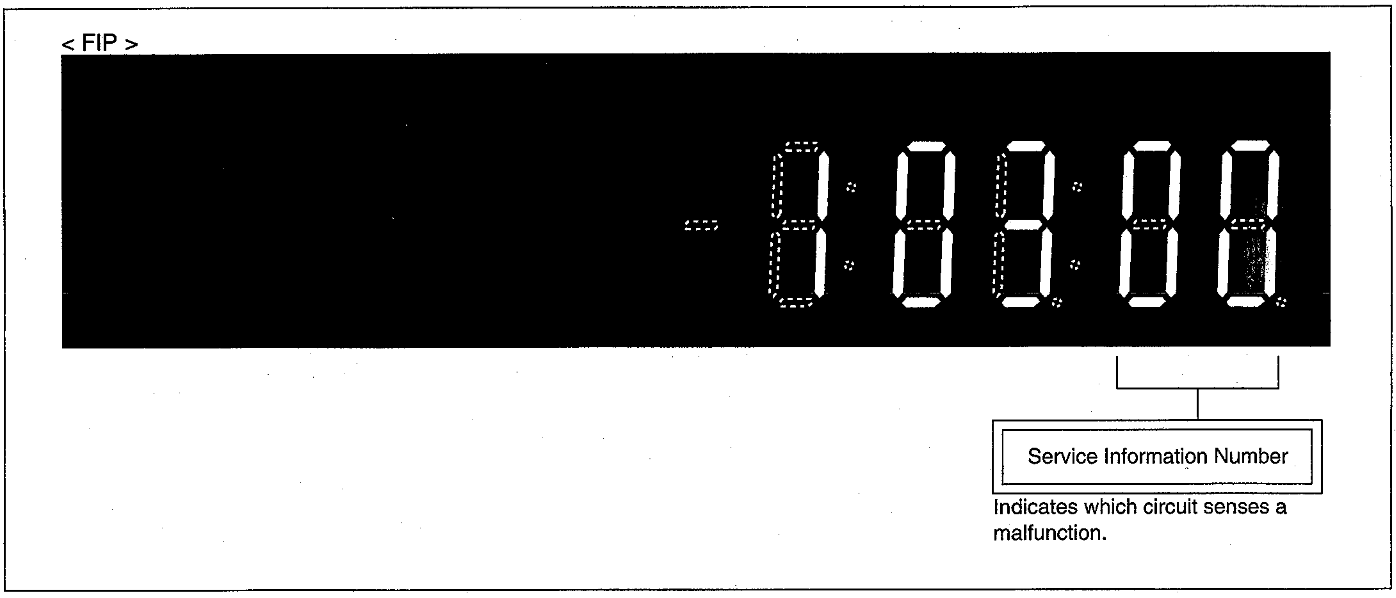

< FIP >
Service Information Number
Indicates which circuit senses a malfunction.

Fig. D3 Service Information Number on F.I.P.

7-4. Service Information Number

Refer to Fig. D4 for details of Service Infromation Number.

NOTE: The Service Information Number display is independent of the service mode display. The Service Information Number will be stored as long as AC power is not supplied. (If can be displayed in the Service Mode 2.)

If a second error occurs, only the most recent error will be displayed.

Service Information Number	Malfunction
00	Normal condition (No problem)
10	Dew formation
01	Cylinder stop
02	Tape reel stop
03	Stop at position other than 04 or 06
04	Stop during unloading
06	Stop during Cassette-in/Eject operation
07	Recording circuit stop in recording mode.
08	Recording circuit stop except recording mode.
16	Cylinder lock
17	Supply reel lock
18	Take-up reel lock
2*	PG shifter automatic adjustment error

Fig. D4 Detail Service Information Number

7-5. Test Mode

When the test terminals are shorted during turning off condition, the following operation will be performed after AC power is applied. Test Mode Information will be displayed on FIP insted of linear counter. To release Test mode, test Terminales should be opened.

(1) Power will be turned on automatically when AC power is applied.

(2) The direct operation of buttons are able to be performed.
(Examle) PLAY⟷REC, REC→EJECT, REC→FF/REW

(3) In case the mechanism is in PLAY position, the mechanism goes into PLAY mode when AC power is applied.

(4) Playback CVC function is turned off.

(5) Tracking is fixed under power off and cassette in. Auto tracking does not perform.

(6) For recording current adjustment.

(7) For reverse slow tracking adjustment.

(8) When the power is turned off, tracking is fixed.

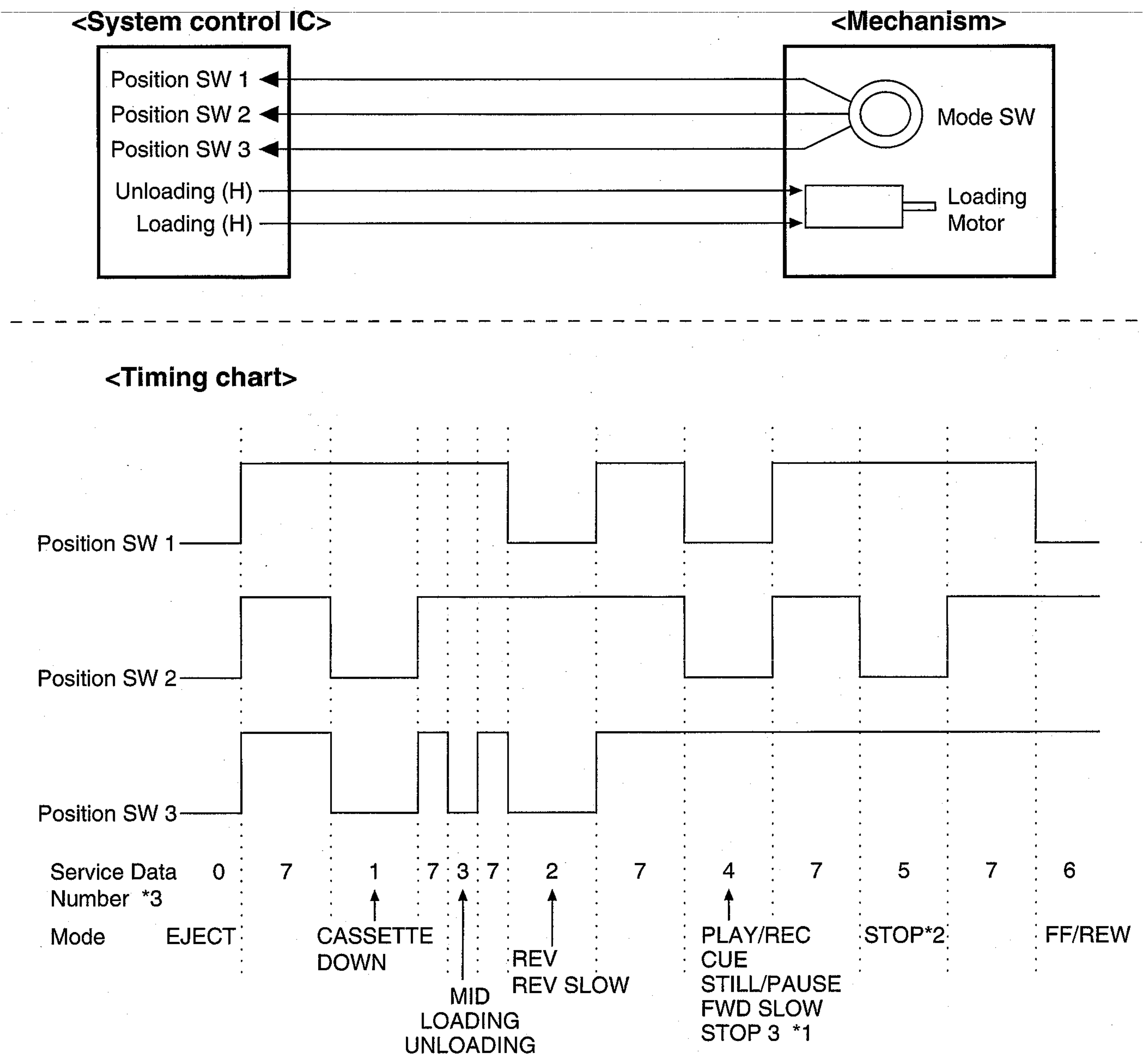
Service Mode Number	Note for checking Service Data Numbers	Service Data Numbers	Indication	Remarks
1	—	00	No light detected at either sensor	Tape not required.
		01	Tape beginning Light to Supply photo sensor is blocked.	
		02	Tape end Light to Take-up photo sensor is blocked.	
		03	Light detected at both sensors.	
2	—	00	EJECT	Tape required *1. STOP3: Pintch roller is on Capstan motor shaft. *2. STOP: Pintch roller is off Capstan motor shaft.
		01	Cassette down	
		02	REV, REV SLOW	
		03	Loading/Unloading	
		04	PLAY, REC, STILL, PAUSE, CUE, FWD SLOW, STOP3*1	
		05	STOP*2	
		06	FF/REW	
		07	Intermediate position	
3	Disregard service data displayed until mechanism operation is completed. Then the display should indicate "00".	00	Any display other than "00" indicates a fault in the mode switch circuit or system.	Tape required.
4	Display only when the operating button is pressed.			Tape not required.
5	Left digit only, disregard Right digit display.	8 1 Left Right Digit Digit	8, 9, u, A, —, n, L and no display indicate that the Capstan motor "PLAY" command received by System control microprocessor.	Tape required. If a symbol other than those listed is displayed, a mulfunction in that circuit is indicated.
	Right digit only, disregard left digit dispaly.	8 7 Left Right Digit Digit	1, 2, 3, 4, 5, 6, 7 indicate that the Capstan motor "CUE, FF, FWD SLOW" commands received by system control microprocessor.	
	Right digit only, disregard left digit display.	8 — Left Right Digit Digit	8, 9, u, A, —, n, L and no display indicate that the Capstan motor "Reverse, REW, Reverse Slow" commands received by system control microprocessor.	
6	Left digit only, disregard Right digit display.	1 0 Left Right Digit Digit	1, 3, 5, 7, 9, A, n and no display indicate that the cylinder motor "ON" command received by system control microprocessor.	Tape required. If a symbol other than those listed is displayed, a mulfunction in that circuit is indicated.

Fig. D5 Service Data Display and Indication

7-6. Timing chart from Mode SW to System control IC

System control IC senses the mechanical position through the Mode SW.

Fig. D6 shows the timing for service mode number 2.


<System control IC>
<Mechanism>
Position SW 1
Position SW 2
Position SW 3
Unloading (H)
Loading (H)
Mode SW
Loading Motor
<Timing chart>
Position SW 1
Position SW 2
Position SW 3
Service Data Number *3
0
7
1
7
3
7
2
7
4
7
5
7
6
Mode
EJECT
CASSETTE DOWN
MID LOADING UNLOADING
REV
REV SLOW
PLAY/REC
CUE
STILL/PAUSE
FWD SLOW
STOP 3 *1
STOP*2
FF/REW

*1 : Stop 3 ;The Pinch roller is on the Capstan motor shaft.

*2 : Stop ;The Pinch roller is off the Capstan motor shaft.

*3 : Service Data Number; This is for Service Mode Number 2.

Fig. D6 Timing chart of Mode SW

8. SYSTEM CONTROL CIRCUIT & MECHANISM CONTROL CIRCUIT

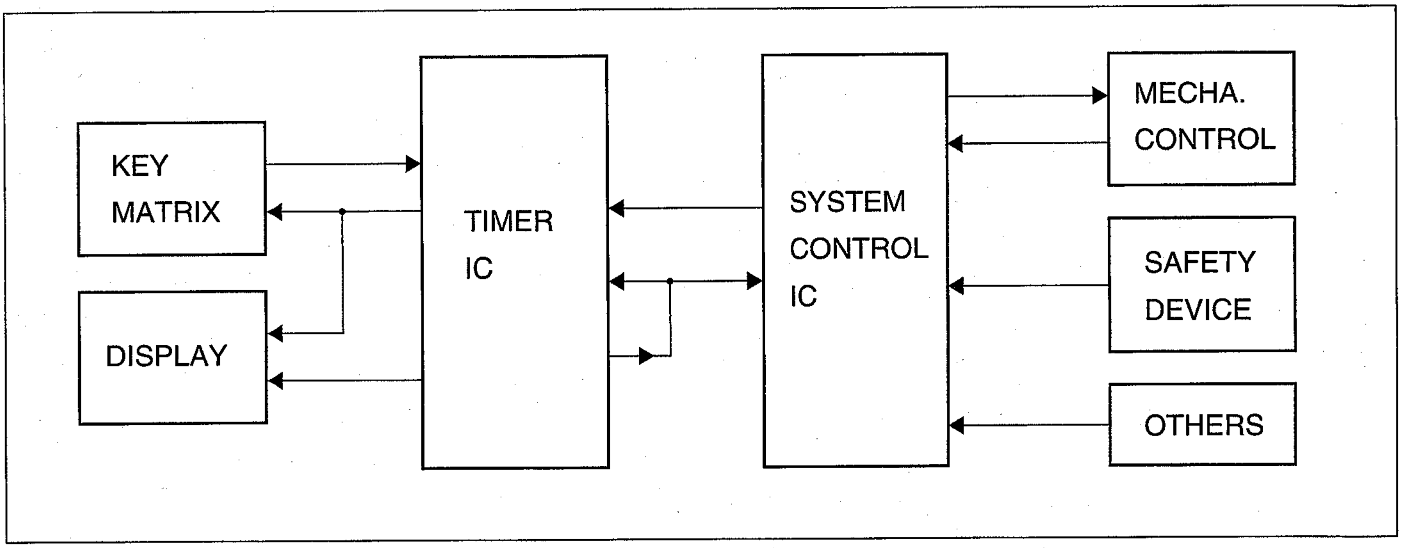


Fig. S1 Overall Block Diagram of System Control Circuit

8-1. STOP3 Specification

(1) The STOP3 is the playback stand-by mode.

(2) The unit is put into the STOP3 position after tape loading if the cassette tape does not have a clear leader tape.

(3) If the unit is in the STOP3 position when the power is switched off (included the Timer stand-by mode), the unit goes to the STOP position.

(4) If the cassette is in the unit when the power is turned on, the unit goes to the STOP3 position.

(5) When the cassette tape has clear leader tape, the unit is in loading mode after winding up the clear leader tape by Take-up reel at the cassette down position and the unit goes to STOP3 position.

8-2. Stand-by in the STOP3 position

(1) The unit goes to STOP3 position when the Stop mode is selected during the Play or Rec operations. The unit then loosens the tape tension by performing the Reverse Slow.

The Reverse Slow corresponds to the FG 40 pulses of the capstan (irrespective of SP/LP modes). The cylinder continues to rotate.

(2) After about 5 minutes in STOP3 mode, the unit shifts to the Stop position and then the unit stops the cylinder rotation.

8-3. Supply and Take-up Sensors

Supply and Take-up photo transistors are used to sense the beginning and end of a tape. The tape has transparent leaders at the beginning and end.

When these transparent leaders enter the tape transport path, they allow infrared light from the sensor LED to reach either one of the tape end sensors (photo-transistor).

If the Take-up end sensor detects the light, the microprocessor SYSTEM CONTROL IC places the VCR in the Stop mode and then performs a short Cue.

If the Supply end sensor is triggered, the microprocessor activates the Stop mode and the Rewind mode. The Rewind mode continues until the Take-up end sensor detects the end of the tape. The tape beginning is detects by a low signal at SYSTEM CONTROL IC Take-up photo terminal. The tape end is detected by a low signal at SYSTEM CONTROL IC Supply photo terminal.

If the light is received at both sensors at same time, the cassette is ejected.

<Operation after detecting the beginning and the end of tape>

Mode	Detection of the beginning	Detection of the end
Power off→on	Short CUE	Short REW
Cassette in	Short CUE	Short REW
Loading	Short CUE	Short REW
FF/CUE	——	Auto REW
REW/REV	Short CUE	——
PLAY, REC	——	Auto REW
Timer REC	——	Power off

Both ends of tape detection (tape cut, no cassette),

(1) Cassette in:	The cassette tape is ejected
(2) Other mode:	The unit goes to Stop mode and it is impossible to operate except EJECT key.
(3) Timer REC:	Power is turned off after short CUE is performed.

8-4. Safety Tab Switch

A recorded video cassette can be protected against accidental erasure by breaking off the tab on the cassette. The cassette can now only be used for playback. To be able to record on the cassette, cover the hole with adhesive tape. If the safety tab on the cassette has been removed, Safety Tab Switch is off (open) and high signal is supplied to SYSTEM CONTROL IC Safety Tab terminal. The SYSTEM CONTROL IC will not go into the recording mode and automatically places the VCR in the playback mode.

8-5. Dew Sensor

If excessive moisture or condensation is present inside the machine (an internal humidity of more than 98%) the unit will stop if running. Until the moisture level decreases only the Eject mode will operate. To sense the humidity, a dew sensor is used. The sensor is a special variable resistor which change resistance with ambient humidity.

The sensor ranges in resistance from about 5K ohm at 90% humidity to about 50K omh at 98% humidity. Normally, the voltage across the sensor is low because of its low resistance.

But if moisture condenses inside the unit, the SYSTEM CONTROL IC voltage of Dew terminal increases to indicate a Dew condition.

Tape	Mode	Dew sensor ON	Dew sensor OFF
OUT	Power	Compulsory Power on	Power off
	Dew indication	Indicate “d” and “U10”	Normal indication
	Cylinder	Rotating *1	Stop
	Key operation	Not possible *2	Possible
	Cassette in	Immediately a cassette is ejected after it goes to cassette down position.	Possible
IN	Power	Compulsory Power on	Power off
	Dew indication	Indication “d” and “U10”	Normal indication
	Cylinder	Rotating *1	Stop
	Key operation	Not possible *2	Possible
	Cassette condition	A cassette goes to down position and is in stand-by mode.	Stand-by mode at STOP3 position.

*1: When the cylinder locks in dew mode, it will be released until dew sensor is truned off.

*2: The keys which do not relate to the tape running operation, are able to be used.

Dew sensor on:	During Dew formation is detected and 80 minutes after completion of Dew detection.
Dew sensor off:	80 minutes later after copmletion of Dew detection.

8-6. Setting time for each mode

The time is set on each mode in order to protect tape and capstan driver. When the setting time is over, the mode is gone to the next mode.

Mode	Setting time	Switching mode
STILL, PAUSE	Approximately 5 minutes	STOP
CUE/REV lock	Approximately 10 minutes	PLAY
SLOW	Approximately 10 minutes	STOP

8-7. Operation of short CUE

Short CUE stops when the Take-up photo sensor detects the black portion of the tape.

However its sensor does not detect the black portion within 4.0±1.0 sec., the mode except Power on/off and Eject modes will be abe to be operated after the unit stops. This is same as the timer over operation of the reel lock.

8-8. Loading/Unloading Mechanism lock

Loading and unloading times are set, and in case the mechanism locks during loading or unloading operation within the defined time, the unit detects the mechanism lock and loading motor reverses or stops.

Loading operation lock:	Cassette tape is unloaded and ejected within 5 seconds.
Unloading operation lock:	Power is truned off within 5 seconds.

8-9. Cassette loading/unloading lock

(1) Mechanism locks during the cassette in operation.

① Cassette tape is ejected approximately 2 seconds later when the mechanism locks during the cassette in operation.

② In case mechanism locks during eject operation, cassette tape is inserted and power is turned off approximately 2 seconds later.

③ When Mechanism locks during cassette in operation, power is turned off approximately 2 seconds.

In case the mechanism lock is released on the way and cassette is ejected, the unit continues the normal operation.

(2) Mechanism locks during the eject operation.

① Cassette tape goes to cassette down position approximately 2 seconds later and power is turned off when mechanism locks during eject operation.

② Mechanism locks during cassette down operation, power is turned off.

8-10. Reel lock operation

When the Suuply or Take-up reel mechanism locks during the tape running, the following operation is performed in order to protect the tape and the capstan driver.

In case of Take-up reel mechanism lock, the detecting time is defined depending on the mechanism position and capstan speed to minimize the tape supplying from supply side.

FF/REW : Unloading and loading. The unit goes to CUE/REV mode.

PLAY/CUE/REV : Unloading till the cassette down position and loading. The unit goes to STOP3 position.

In play and CUE/REV mode, the reel pulse cycle is started to count after the mechanism mode is fixed.

In case the counted pulse cycle exceeds the defined value, the unit goes to STOP mode due to judge that lock of reel mechanism is detected.

<The value of reel lock detection time>

NTSC/SP mode

Mode	Speed (Ratio)	Time (S)
PLAY	±1	3.5
CUE/REV	±2.5	1.6

PAL/SP mode

Mode	Speed (Ratio)	Time (S)
PLAY	±1	3.5
CUE/REV	±2.5	1.6

In FF/REW mode, the unit goes to CUE/REV mode and continues the tape running in the following case.

1. (1) Take-up reel pulse can not be detected within 5 seconds after the unit shifted to REW mode.
   (2) Supply reel pulse can not be detected within 5 seconds after the unit shifted to FF mode.
2. The reel pulse can not be detected more than 2 seconds sequentially within 5 seconds after completing the mechanism mode shift.
3. The reel pulse can not be detected more than 800 msec. past 5 seconds after completing the mechanism mode shift.

8-11. Cylinder lock

<Start rotation>

When the cylinder neither start rotating nor go to the stability rotation within 5 seconds, it is unloading under keeping the mode. In case the cylinder starts rotating and goes to the stability rotation, the mechanism loads again and continues the holding mode.

If it is not possible, Power is turned off and cylinder trouble "H01" is displayed.

<During rotation>

The head switching pulse is supplied to the cylinder when the cylinder starts the stable revolution. In case the head switching pulse does not come to the cylinder within 0.5 seconds, the cylinder lock is judged and the following operation is activated.

Timer REC mode: Power off

PLAY, REC mode: STOP (Mechanism shifts to MID. position and the unit goes to stand-by mode.)

8-12. Mode transition

The relation between the present mode and operation key is shown in the following table.

PRESET MODE	OPERATION KEY							
	P SW	EJECT	STOP	REW	FF	PLAY	PAUSE	REC
P-OFF	P-ON	EJECT	——	——	——	PLAY	——	——
EJECT	P-OFF	——	——	——	——	——	——	——
STOP	P-OFF	EJECT	*3	REW	FF	PLAY	——	REC
REW	P-OFF	EJECT	STOP	REV	FF	PLAY	——	——
FF	P-OFF	EJECT	STOP	REW	CUE	PLAY	——	——
REV	P-OFF	EJECT	STOP	——	*1	PLAY	*2	——
CUE	P-OFF	EJECT	STOP	*1	——	PLAY	*2	——
PLAY	P-OFF	EJECT	STOP	*1	*1	——	*2	——
STILL	P-OFF	EJECT	STOP	*1	*1	PLAY	PLAY	REC PS
REC	P-OFF	——	STOP	——	——	——	REC PS	——
REC/PS	P-OFF	——	STOP	——	——	——	REC	REC

Pressing two keys simultaneously, the key operation is going to be ineffective.

*1: The unit goes to CUE/REV lock mode by pressing FF/REW key lightly (less than 0.7 seconds) during Play, still and REV mode. CUE/REV mode will be returned previous mode when FF/REW key is pressed more than 0.7 seconds.

*2: In case PAUSE key is pressed less than 1 second other than STILL mode, the unit goes to STILL mode.

If PAUSE key is being held to press, the unit goes to STILL mode and then goes to 1/10 SLOW mode after 1 second. SLOW mode has not been set in 2 Head LP mode model.

*3: When STOP key is pressed more than 3 seconds while a cassette tape is in the unit, the cassette tape is ejected.

8-13. Power on reset

When the power is turned on, the unit is going to reset and the following datas are cleared.

(1) Position switch data
(2) Operation mode data
(3) Prohibition flags

In case the mechanism is in cassette down position, tape slack is removed as the initial operation and the unit goes to STOP3 position.

8-14. Linear time counter operation

The counter value will be gone up/down by counting control pulse. As for NTSC system during Play/Rec mode, counter value goes up/down every 30 pulses. As for PAL system during Play/Rec mode, counter value goes up/down every 25 pulses.

8-15. Tape speed in CUE/REV mode

	CUE/REV mode		Hyper-search mode	
MODE	NTSC	PAL	NTSC	PAL
SP mode	9 times	11 times	9 times	11 times
EP or LP mode	11 times	11 times	29 times	19 times

8-16. Automatic functions

(1) Automatic Power on

① Under power off, when a cassette tape is inserted, power is turned on automatically and cassette tape is loaded.

② Under power off and a cassette tape has been inserted, when PLAY key is pressed, power is turned on automatically and goes to PLAY mode.

(2) Automatic play

When a cassette tape removed safety tab is inserted, the mode goes into Play mode.

(3) Automatic rewind

When tape running is reached to the end of tape, automatically goes to Rew mode and stops when tape running will be reached to the beginning of tape.

In case of Timer recording, short Rew is performed for 2 seconds and power is turned off when tape running is reached to the end of tape.

(4) Power off and Eject

Under power off and a cassette tape has been inserted, when Eject key is pressed, a cassette tape is ejected and power is turned off.

8-17. CUE/REV lock mode

When FF/REW key is pressed lightly (less than 0.7 seconds) during Play, STILL and REV mode, unit goes into CUE/REV mode. To release CUE/REV mode, FF/REW key should be pressed more than 0.7 seconds.

8-18. Hyper-search mode

When FF/REW key is pressed during FF/REW mode, unit goes into CUE/REV mode.

This mode is activated while keeping FF/REW key pressed.

When releasing FF/REW key pressed, this mode is released.

8-19. FF/REW speed

Maximum tape speed is approximately 4.5 m/s during the stable running.

8-20. FF/REW time

The tape running from the beginning to the end of T-120 type (E-180 type) cassette tape is able to be completed within 90 seconds.

Order No. VRD9710036S3

Service Manual

Supplement

Effective from : Running Change

Video Product

Model No. All Z mechanism

Subject : Change of Mechanism Parts

Please use this service manual together with the service manual for Order No.
Model No. All Z mechanism

INTERCHANGEABILITY CODE See the I/C column on the following Part Number List

	Parts	Production		Parts	Production		Parts	Production		Parts	Production		
A	Original	Early	B	Original	Early	C	Original	Early	D	Original	Early	E	Addition
	New	Late		New	Late		New	Late		New	Late	F	Deletion
												G	Other

Parts Number List

Ref No.	Original Part No.	New Part No.	Part Name & Description	I/C	Remarks
19 (1)	VED0363	VED0412	A/C HEAD UNIT	B	
49 (1)	VXL2737	VXL2733	SUPPLY BRAKE ARM UNIT	G	

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Order No. VRD9802006S3

Service Manual

Supplement

Video Product

Effective from : First Production

Model No.
ALL Z Mechanism

Subject : Revision of Service Manual

Please use this service manual together with the service manual for Order No.
Model No. All Z Mechanism

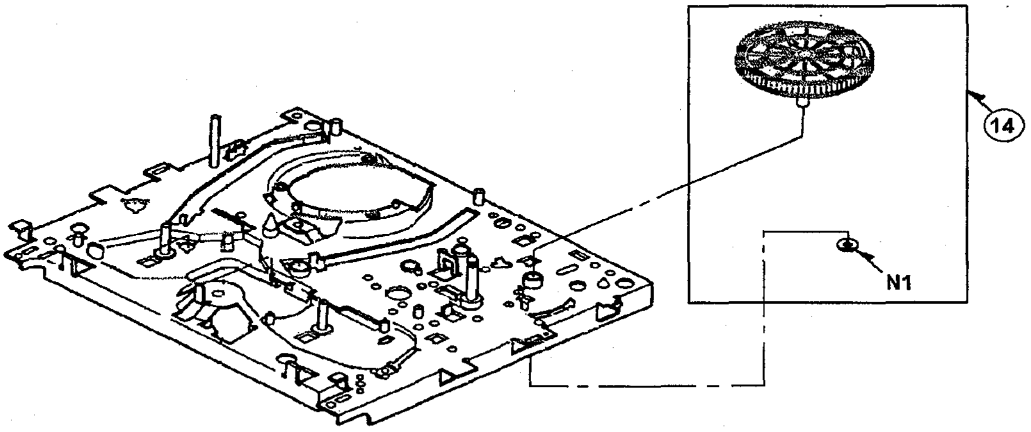
INTERCHANGEABILITY CODE See the I/C column on the following Part Number List

	Parts	Production		Parts	Production		Parts	Production		Parts	Production	E	Addition
A	Original	Early	B	Original	Early	C	Original	Early	D	Original	Early	F	Deletion
	New	Late		New	Late		New	Late		New	Late	G	Other

Parts Number List

Ref No.	Original Part No.	New Part No.	Part Name & Description	I/C	Remarks
14 (1)	VDG1220	VDG1220KIT	MAIN CAM GEAR KIT	G	

MAIN CAM GEAR KIT (VDG1220KIT) contains MAIN CAM GEAR (VDG1220) and PUSH NUT (VHN0311) as shown in below.



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